## APPENDICES

## Appendix A

**Appendix A-1 DWR Recommended Tables** 

**Appendix A-2 DWR Checklist** 

## Appendix B

**Appendix B-1 Resolution Adopting the 2010 UWMP** 

**Appendix B-2 Copies of General Notice Publications** 

**Appendix B-3 Copies of Notification Letters Sent** 

**Appendix B-4 Water Shortage Draft Resolution** 

**Appendix B-5 Meter Study** 

## **Appendix C**

**Appendix C-1 Contract Agreements** 

**Appendix C-2 Bickford Agreement** 

Appendix C-3 Letter from PCWA April 7, 2011

**Appendix C-4 PCWA NID Water Sales Agreement** 

Appendix C-5 2004 NID Lincoln Planning and Phasing Agreement

**Appendix C-6 2007 Treated Water Facility MOU** 

**Appendix C-7 2008 NID Regional Water Supply Project Memo** 

## **Appendix D**

**Appendix D-1 Western Placer County Groundwater Management Plan** 

**Appendix D-2 North American Groundwater Basin** 

Appendix D-3 SGA Area of North American Groundwater Basin and Hydrographs

**Appendix D-4 2004 Reclamation Master Plan** 

# Appendix A-1 – DWR Recommended Tables

	Table 1  Coordination with appropriate agencies											
Coordinating Agencies 1,2	Participated in developing the plan	Commented on the draft	Attended public meetings	Was contacted for assistance	Was sent a copy of the draft plan	Was sent a notice of intention to adopt	Not involved / No information					
Placer County Water Agency	Х					Х						
Nevada County Water Agency						Х						
South Sutter Irrigation District						Х						
Sacramento Area Council of Governments						Х						
County of Placer						Х						
General public			Х			Х						

 $<sup>^{\</sup>rm I}$  Indicate the specific name of the agency with which coordination or outreach occurred.  $^{\rm 2}$  Check at least one box in each row.

Table 2												
Population — current and projected												
2010 2015 2020 2025 2030 2035 - optional Data so												
Service area population <sup>1</sup>	41,141	46,059	51,237	58,642	66,043	73,499	Department of Finance					

Service area population is defined as the population served by the distribution system. See Technical Methodology 2: Service Area Population (2010 UWMP Guidebook, Section M). <sup>2</sup> Provide the source of the population data provided.

	Water de	Table 3	205								
	water de	liveries — actual, 20	2005								
	Met	Metered Not metered Total									
Water use sectors	# of accounts	Volume	# of accounts	s Volume* Volume							
Single family	14,099	6,646	5	2	6,648						
Multi-family	92	306	0	0	306						
Commercial	277	601	16	35	636						
Industrial	8	215	0	0	215						
Institutional/governmental	18	85	0	0	85						
Landscape	52	543	0	0	543						
Agriculture	0	0	0	0	0						
Other	12	140	0	0	140						
Total	14,558	8,536	21	37	8,573						
Units (circle one):	acre-feet per year	million gallons per year	cubic feet per year	*Non metered volum	es estimated						

	Table 4 Water deliveries — actual, 2010												
			2010										
	Metered Not metered Total												
Water use sectors	# of accounts	Volume	# of accounts	Volume*	Volume								
Single family	15,911	6,581	6	2	6,583								
Multi-family	84	266	0	0	266								
Commercial	247	508	6	12	520								
Industrial	7	217	0	0	217								
Institutional/governmental	23	135	0	0	135								
Landscape	186	920	0	0	920								
Agriculture	0	0	0	0	0								
Other	12	56	0	0	56								
Total	<b>Total</b> 16,470 8,683 12 14 8,69												
Units (circle one):	acre-feet per year	million gallons per year	cubic feet per year	*Non metered volum	es estimated								

	Table 5 Water deliveries — projected, 2015												
			2015										
	Met	ered	Not m	Total									
Water use sectors	# of accounts	Volume	# of accounts	Volume	Volume								
Single family	11,871	5,768			5,768								
Multi-family	6,217	1,622			1,622								
Commercial	189	515			515								
Industrial	153	416			416								
Institutional/governmental	270	818			818								
Landscape					0								
Agriculture					0								
Other					0								
Total	18,700	9,139	0	0	9,139								
Units (circle one):	acre-feet per year	million gallons per year	cubic feet per year										

	Table 6 Water deliveries — projected, 2020											
			2020									
	Met	ered	Not m	etered	Total							
Water use sectors	# of accounts	Volume	# of accounts	Volume	Volume							
Single family	13,291	6,417			6,417							
Multi-family	6,797	1,721			1,721							
Commercial	199	526			526							
Industrial	188	492			492							
Institutional/governmental	270	797			797							
Landscape					0							
Agriculture					0							
Other					0							
Total	20,745	9,953	0	0	9,953							
Units (circle one):	acre-feet per year	million gallons per year	cubic feet per year									

	Table 7 Water deliveries — projected 2025, 2030, and 2035													
		25	20		2035 - optional									
	met	ered	meto	ered	met	ered								
Water use sectors	# of accounts	Volume	# of accounts	Volume	# of accounts	Volume								
Single family	15,322	7,375	17,352	8,333	19,397	9,370								
Multi-family	7,626	1,880	8,456	2,038	9,291	2,236								
Commercial	219	561	239	597	259	647								
Industrial	223	568	258	644	292	731								
Institutional/governmental	270	777	270	757	270	757								
Landscape														
Agriculture														
Other														
Total	23,660	11,161	26,575	12,369	29,510	13,741								
Units (circle one):	acre-feet per year	million gallons per year	cubic feet per year											

		Table 8	3								
Low-income projected water demands											
Low Income	Water Demands <sup>1</sup>	2015	2020	2025	2030	2035 - opt					
Single-family residential	426	471	517	584	649						
Multi-family residential	Multi-family residential			1,564	1,735	1,892					
	Total	1,759	1,920	2,081	2,319	2,541					
Units (circle one):	acre-feet per year	million gallons per yeaı cubic feet per year									
<sup>1</sup> Provide demands either as directly es	stimated values or as a percent of deman	d.									

	Table 9										
	Sales to other water agencies										
Water di	stributed	2005	2010	2015	2020	2025	2030	2035 - opt			
N/A		0	0	0	0	0	0	0			
	Total	0	0	0	0	0	0	0			
Units (circle one):	acre-feet per vear	million gallons per vear	cubic feet per vear								

	Table 10											
Additional water uses and losses												
Water use <sup>1</sup>	2005	2010	2015	2020	2025	2030	2035 -opt					
Saline barriers	0	0	0	0	0	0	0					
Groundwater recharge	0	0	0	0	0	0	0					
Conjunctive use	0	0	0	0	0	0	0					
Raw water	0	0	0	0	0	0	0					
Recycled water	0	0	0	0	200	300	400					
System losses	803	520	1,364	1,187	1,305	1,424	1,562					
Other (define)	0	0	0	0	0	0	0					
Total	803	520	1,364	1,187	1,505	1,724	1,962					

Units (circle one):

acre-feet per year million gallons per year cubic feet per year

Any water accounted for in Tables 3 through 7 are not included in this table.

Table 11  Total water use									
Water Use		200	)5	2010	2015	2020	2025	2030	2035 - opt
Total water deliveries (from Tables 3 to 7)		8,573		8,697	9,139	9,953	11,161	12,369	13,741
Sales to other water agencies (from Table 9)		0		0	0	0	0	0	0
Additional water uses and losses (from Table 10)		803		520	1,364	1,187	1,505	1,724	1,962
	Total		9,376	9,217	10,503	11,140	12,666	14,092	15,703
Units (circle one):	acre-feet per year	million gallor	ns per year	cubic feet per year					

Table 12 Retail agency demand projections provided to wholesale suppliers										
Wholesaler         Contracted Volume <sup>3</sup> 2010         2015         2020         2025         2030         2035 - opt										
PCWA	21250AF/Yr	8,500	8,500	8,695	9,176	9,706	10,316			
NID	3488 AF/Yr	1,395	1,395	1,541	2,059	2,630	3,286			

	Table 13		
	Base period ranges		
Base	Parameter	Value	Units
	2008 total water deliveries	10522	see below
	2008 total volume of delivered recycled water	0	see below
40 to 45 combined and	2008 recycled water as a percent of total deliveries	0	percent
10- to 15-year base period	Number of years in base period <sup>1</sup>	10	years
	Year beginning base period range	2000	
	Year ending base period range <sup>2</sup>	2009	
	Number of years in base period	5	years
5-year base period	Year beginning base period range	2005	
,	Year ending base period range <sup>3</sup>	2009	

Units (circle one): acre-feet per year million gallons per year cubic feet per year

<sup>1</sup>If the 2008 recycled water percent is less than 10 percent, then the first base period is a continuous 10-year period. If the amount of recycled water delivered in 2008 is 10 percent or greater, the first base period is a continuous 10- to 15-year period.

<sup>&</sup>lt;sup>2</sup>The ending year must be between December 31, 2004 and December 31, 2010.

<sup>&</sup>lt;sup>2</sup>The ending year must be between December 31, 2007 and December 31, 2010.

Table 14 Base daily per capita water use — 10- to 15-year range							
Base period yea	Distribution System Population	Daily system gross water use (mgd)	Annual daily per capita water use				
Sequence Year	Calendar Year		3.7	(gpcd)			
Year 1	2000	11235	2,610	207			
Year 2	2001	13659	3,734	244			
Year 3	2002	16886	4,776	253			
Year 4	2003	20035	5,388	240			
Year 5	2004	23480	7,541	287			
Year 6	2005	27433	8,343	272			
Year 7	2006	33619	9,376	249			
Year 8	2007	37455	10,320	246			
Year 9	2008	39636	10,522	237			
Year 10	2009	40532	10,155	224			
	246						

Table 15 Base daily per capita water use — 5-year range						
Base period y Sequence Year	ear Calendar Year	Distribution System Population	Daily system gross water use (mgd)	Annual daily per capita water use (gpcd)		
Year 1	2005	27433	8,343	272		
Year 2	2006	33619	9,376	249		
Year 3	2007	37455	10,320	246		
Year 4	2008	39636	10,522	237		
Year 5	2009	40532	10,155	224		
		Base Daily P	er Capita Water Use <sup>1</sup>	245		
$^{1}$ Add the values in the column and divid by th	ne number of rows.					

Table 16 Water supplies — current and projected							
Water Supply Sources		2010	2015	2020	2025	2030	2035 - opt
Water purchased from <sup>1</sup> :	Wholesaler supplied volume (yes/no)						
PCWA		8,500	8,500	8,695	9,176	9,706	10,316
NID		1,395	1,395	1,541	2,059	2,630	3,286
Supplier-produced groundwater <sup>2</sup>		962	1,073	1,137	1,271	1,404	1,556
Supplier-produced surface water		0	0	0	0	0	0
Transfers in		0	0	0	0	0	0
Exchanges In	0	0	0	0	0	0	
Recycled Water	Recycled Water			0	200	300	400
Desalinated Water		0	0	0	0	0	0
	Total	10,857	10,968	11,373	12,706	14,040	15,558

Units (circle one): acre-feet per year million gallons per year cubic feet per year

<sup>2</sup> Volumes shown here should be consistent with Tables 17 and 18.

 $^{1}$ Add the values in the column and divid by the number of rows.

<sup>1</sup> Volumes shown here should be what was purchased in 2010 and what is anticipated to be purchased in the future. If these numbers differ from what is contracted, show the contracted quantities in Table 17.

	Wholesale sup	Table 1 oplies — existing an		of water		
Wholesale sources <sup>1,2</sup> Contracted Volume <sup>3</sup> 2015 2020 2025 2030 2035 - opt						2035 - opt
PCWA	21250AF/Yr	8,500	8,695	9,176	9,706	10,316
NID 3488 AF/Yr 1,395 1,541 2,059 2,630 3,286						
Units (circle one): acre-feet per year million gallons per year cubic feet per year						

<sup>1</sup>Water volumes presented here should be accounted for in Table 16.

<sup>2</sup>If the water supplier is a wholesaler, indicate all customers (excluding individual retail customers) to which water is sold. If the water supplier is a retailer, indicate each wholesale supplier, if more than one.

<sup>3</sup>Indicate the full amount of water

		Table 1 Groundwater — vol				
Basin name(s)	Metered or Unmetered <sup>1</sup>	2006	2007	2008	2009	2010
Sacramento Valley	Metered	623	924	1,085	836	962
Total (	roundwater pumped	623	924	1,085	836	962
Groundwater as a percent	of total water supply	6.6%	8.95%	10.31%	8.23%	10.45%
Units (circle one): acre-feet per year million gallons per year cubic feet per year						
Indicate whether volume is based on volumeteric meter data or another method						

		Table 19						
	Groundwater — vo	olume projected to	be pumped					
Basin name(s)	2015	2020	2025	2030	2035 - opt			
Sacramento Valley	1,073	1,137	1,271	1,404	1,556			
Total groundwater pumped	1,073	1,137	1,271	1,404	1,556			
Percent of total water supply	Percent of total water supply 9.78% 10.00% 10.00% 10.00% 10.00%							
Units (circle one): Include future planned expansion	acre-feet per year	million gallons per year	cubic feet per year					

Table 20 Transfer and exchange opportunities						
Transfer agency Transfer or Short term or long exchange term Proposed Volume						
N/A	0	0	0			
Total						
Units (circle one):	acre-feet per year	million gallons per year	cubic feet per year			

	Table 21							
Recycled water — wastewater collection and treatment  Type of Wastewater 2005 2010 2015 2020 2025 2030 2035 - opt								
Wastewater collected & treated in service area		2,701	4,002	5,365	5,686	6,353	7,020	7,779
Volume that meets recycled water standard	olume that meets recycled water standard         2,701         4,002         5,365         5,686         6,353         7,020         7					7,779		
Units (circle one):	acre-feet per year	million gallons per year	cubic feet per year					

	Table 22							
		Recycled w	ater — non-recycle	d wastewater dispo	sal			
Method of disposal	Treatme	nt Level	2010	2015	2020	2025	2030	2035 - opt
Discharge into Ravine		Tirtiary	2,824	2,852	2,958	3,304	3,651	4,046
	Total         2,824         2,852         2,958         3,304         3,651         4,046							
Units (circle one):	acre-feet per year	million gallons per year	cubic feet per year					

	Table 23						
Recycled water — potential future use							
User type	Description	Feasibility <sup>1</sup>	2015	2020	2025	2030	2035 - opt
Agricultural irrigation	Tirtiary	In use	500	3,466	6,432	9,398	12,365
Landscape irrigation <sup>2</sup>	Tirtiary	Planned	0	170	340	510	683
Commercial irrigation <sup>3</sup>							
Golf course irrigation	Tirtiary	Planned	0	1,635	1,635	1,635	1,635
Wildlife habitat							
Wetlands							
Industrial reuse	Tirtiary	Planned	0	1,720	1,720	1,720	1,720
Groundwater recharge							
Seawater barrier							
Getothermal/Energy							
Indirect potable reuse							
	Total	0	500	6,991	10,127	13,263	16,403

Units (circle one):

acre-feet per year

million gallons per year cubic feet per year

<sup>&</sup>lt;sup>3</sup>Includes commercial building use such as landscaping, toilets, HVAC, etc) and commercial uses (car washes, laundries, nurseries, etc)

	Table 24					
Recycled water — 2005 UWMP use projection compared to 2010 actual						
Use type	2010 actual use	2005 Projection for 2010 <sup>1</sup>				
Agricultural irrigation	272	4,700				
Landscape irrigation <sup>2</sup>	0	0				
Commercial irrigation <sup>3</sup>	0	0				
Golf course irrigation	0	0				
Wildlife habitat	0	0				
Wetlands	0	0				
Industrial reuse	0	0				
Groundwater recharge	0	0				
Seawater barrier	0	0				
Getothermal/Energy	0	0				
Indirect potable reuse	0	0				
Other (user type)	0	0				
Other (user type)	0	0				
То	tal 272	0				
Units (circle one):	acre-feet per year million gallons per year	cubic feet per year				

<sup>2</sup>Includes parks, schools, cemeteries, churches, residential, or other public facilities) <sup>3</sup>Includes commercial building use such as landscaping, toilets, HVAC, etc) and commercial uses (car washes, laundries, nurseries, etc)

 $^{1}$ From the 2005 UWMP. There has been some modification of use types. Data from the 2005 UWMP can be left in the existing

Table 25 Methods to encourage recycled water use										
					Projected	Results				
Actions			2010	2015	2020	2025	2030	2035 - opt		
Financial incentives			0	0	1,720	1,720	1,720	1,720		
Required Purple Pipe systems in new	developments		0	0	745	1,490	2,235	2,983		
lower cost than treated water			0	0	170	340	510	683		
Total			0	0	2,635	3,550	4,465	5,386		
Units (circle one):	acre-feet per year	million gallons per year	cubic feet per year							

<sup>&</sup>lt;sup>1</sup>Technical and economic feasibility.

<sup>&</sup>lt;sup>2</sup>Includes parks, schools, cemeteries, churches, residential, or other public facilities)

Table 26								
			<b>Future water suppl</b>	y projects				
Burtout manual	Projected start date	Projected	Potential project	Normal-year	Single-dry year	Multiple-dry year	Multiple-dry year second year	Multiple-dry year
Project name <sup>1</sup>	1 Tojected Start date	completion date	constraints <sup>2</sup>	supply <sup>3</sup>	supply <sup>3</sup>	first year supply <sup>3</sup>		third year supply <sup>3</sup>
NID Treatment Plant	unknown	unknown	funding	11790	unknown	unknown	unknown	unknown
	0	11,790	0	0	0	0		
Units (circle one):	acre-feet per year	million gallons per year	cubic feet per year	•	•	•		

<sup>1</sup>Water volumes presented here should be accounted for in Table 16.

2Indicate whether project is likely to happen and what constraints, if any, exist for project implementation.

<sup>3</sup>Provide estimated supply benefits, if available.

Table 27 Basis of water year data	
Water Year Type	Base Year(s)
Average Water Year	All
Single-Dry Water Year	1977
Multiple-Dry Water Years	1990-1992

Table 28								
Supply reliability — historic conditions								
Average / Normal Water Year	Single Dry Water		Multiple Dry	Water Years				
Average / Normal Water Tear	Year	Year 1	Year 2	Year 3	Year 4			
10,857	10,662	10,662	10,662	10,662	10,662			
Percent of Average/Normal Year:	98.2%	98.2%	98.2%	98.2%	98.2%			

	Table 29									
		Factor	s resulting in incons	sistency of supply						
Water su	oply sources <sup>1</sup>	Specific source name, if any	Limitation quantification	Legal	Environmental	Water quality	Climatic	Additional information		
	PCWA			X				Contract Renewal		
	NID			X				Contract Renewal		
	Groundwater					X		Hard Water		
Units (circle one):	acre-feet ner vear	million gallons per vear	cubic feet ner vear							

Units (circle one): acre-feet per year million gallons per year cubic feet per year

1-From Table 16.

Table 30									
Water quality — current and projected water supply impacts									
Water source         Description of condition         2010         2015         2020         2025         2030         2035 -					2035 - opt				
PCWA	N/A								
NID	N/A								
Groundwater	Astetically Displeasing	limit to 10% of supply	limit to 10% of supply	limit to 10% of supply	limit to 10% of supply	limit to 10% of supply	mit to 10% of supply		
Units (circle one):	acre-feet per year million gallons per ye	ear cubic feet per vear							

Table 31 Supply reliability — current water sources									
Water supply sources <sup>1</sup>	Average / Normal Water Year Supply <sup>2</sup>	Multiple Dry Water  Year Supply <sup>2</sup> Year 2011	Year 2012	Year 2013					
PCWA	8,500	8,500	8,500	8,500					
NID	1,395	1,200	1,200	1,200					
Groundwater	962	1,157	1,157	1,157					
Percent of normal year:		100.0%	100.0%	100.0%					
Units (circle one):  acre-feet per year  From Table 16.	million gallons per year	cubic feet per year							

Table 32										
Supply and demand comparison — normal year										
	2015	2020	2025	2030	2035 - opt					
Supply totals (from Table 16)	10,968	11,373	12,706	14,040	15,558					
Demand totals (From Table 11)	10,503	11,140	12,666	14,092	15,703					
Difference	465	233	40	(52)	(145)					
Difference as % of Supply	4.2%	2.1%	0.3%	-0.4%	-0.9%					
Difference as % of Demand	4.4%	2.1%	0.3%	-0.4%	-0.9%					
Units are in acre-feet per year.										

Table 33										
Supply and demand comparison — single dry year										
	2015 2020 2025 2030 2035 - opt									
Supply totals <sup>1,2</sup>	10,662	11,266	11,942	13,342	14,742					
Demand totals <sup>2,3,4</sup>	10,505	11,266	11,942	13,342	14,742					
Difference	156	0	0	0	0					
Difference as % of Supply	1.5%	0.0%	0.0%	0.0%	0.0%					
Difference as % of Demand	1.5%	0.0%	0.0%	0.0%	0.0%					

Units are in acre-feet per year.

<sup>2</sup>See Table 27 for basis of water type years.

<sup>1</sup>Consider the same sources as in Table 16. If new sources of water are planned, add a column to the table and specify the source, timing, and amount of water.

<sup>2</sup>Provide in the text of the UWMP text that discusses how single-dry-year water supply volumes were determined.

<sup>3</sup>Consider the same demands as in Table 3. If new water demands are anticipated, add a column to the table and specify the source, timing, and amount of water.

<sup>4</sup>The urban water taraet determined in this UWMP will be considered when developina the 2020 water demands included in this table.

Table 34										
Supply and demand comparison — multiple dry-year events										
		2015	2020	2025	2030	2035 - opt				
	Supply totals <sup>1,2</sup>	11,266	11,942	13,342	14,742					
	Demand totals <sup>2,3,4</sup>	11,401	12,222	13,622	15,061					
Multiple-dry year	Difference	(135)	(280)	(280)	(319)					
first year supply	Difference as % of Supply	-1.2%	-2.3%	-2.1%	-2.2%					
	Difference as % of Demand	-1.2%	-2.3%	-2.1%	-2.1%					
	Supply totals <sup>1,2</sup>	11,266	11,942	13,342	14,742					
	Demand totals <sup>2,3,4</sup>	11,536	12,502	13,902	15,380					
Multiple-dry year	Difference	(270)	(560)	(560)	(638)					
second year supply	Difference as % of Supply	-2.4%	-4.7%	-4.2%	-4.3%					
	Difference as % of Demand	-2.3%	-4.5%	-4.0%	-4.1%					
	Supply totals <sup>1,2</sup>	11,266	11,942	13,342	14,742					
	Demand totals <sup>2,3,4</sup>	11,671	12,782	14,182	15,698					
	Difference	(405)	(840)	(840)	(957)					
Multiple-dry year third year supply	Difference as % of Supply	-3.6%	-7.0%	-6.3%	-6.5%					
	Difference as % of Demand	-3.5%	-6.6%	-5.9%	-6.1%					

Units are in acre-feet per year.

<sup>1</sup>Consider the same sources as in Table 16. If new sources of water are planned, add a column to the table and specify the source, timing, and amount of water.

Provide in the text of the UWMP text that discusses how single-dry-year water supply volumes were determined.

<sup>3</sup>Consider the same demands as in Table 3. If new water demands are anticipated, add a column to the table and specify the source, timing, and amount of water.

<sup>4</sup>The urban water target determined in this UWMP will be considered when developing the 2020 water demands included in this table.

Table 35 Water shortage contingency — rationing stages to address water supply shortages								
Stage No.	Water Supply Conditions	% Shortage						
1	Current Supply is down to 85% of normal, Projected supply is insufficient to provide 80% for the next two years.	<15%						
2	Current Supply is 75-85% of normal, Projected supply is insufficient to provide 75% for the next two years.	15-25%						
3	Current Supply is 65-75% of normal, Projected supply is insufficient to provide 65% for the next two years.	25-35%						
4	Current Supply is 65% or less of normal, Projected supply is insufficient to provide 50% for the next two years.	35-50%						
<sup>1</sup> One of the stages of action must be designed to addre	ess a 50 percent reduction in water supply.							

Table 36 Water shortage contingency — mandatory prohibitions	
Examples of Prohibitions	Stage When Prohibition Becomes Mandatory
Gross water waste	1
Unrepaired leaks	1
Limited irrigation hours	2
Non irrigation hoses must use automatic shutoff nozzle	2
Limits landscape hosing to health and safety purposes	2
Serve water by request only at restaurants	2
Limited irrigation days	3
Limit water use for cleaning outdoor surfaces to health and safety purposes only	3
Restaurants to post sign notifying customers of drought conditions	3
Vehicles to be washed at commercial facilities with water recycling capabilities or by hand with bucket	3
All pools and spas to be covered to reduce evaporation	3
Hotels, motels, and other commercial lodgings to post notice of drought conditions	3
Use of ornamental fountains prohibited	3
City Council may implement further rules at pubic hearing	3
Irrigation of turf prohibited except by hand held bucket	4
Limit water into pools and spas to maintaining structural integrity	4
City Council may implement further rules at pubic hearing	4

Table 37 Water shortage contingency — consumption reduction methods				
Consumption Reduction Methods	Stage When Method Takes Effect	Projected Reduction (%)		
Above mentioned prohibitions for stage 1	1	15%		
Above mentioned prohibitions for stage 2 and all previous stages	2	25%		
Above mentioned prohibitions for stage 3 and all previous stages	3	35%		
Above mentioned prohibitions for stage 4 and all previous stages	4	50%		

Table 38		
Water shortage contingency — penalties and charges		
Penalties or Charges	Stage When Penalty Takes Effect	
Penalties are set forth in Section 13.04.540 of the Lincoln Municipal Code	All	

## Appendix A-2 – DWR Checklist

Table I-2 Urban Water Management Plan checklist, organized by subject

		Calif. Water		
No.	UWMP requirement <sup>a</sup>	Code reference	Additional clarification	UWMP location
PLAN	PREPARATION			
4	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	10620(d)(2)		Section 1.2
5	Notify, at least 60 days prior to the public hearing on the plan required by Section 10642, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. Any city or county receiving the notice may be consulted and provide comments.	10621(b)		Section 1.2 Appendix B-3
7	Provide supporting documentation that the UWMP or any amendments to, or changes in, have been adopted as described in Section 10640 et seq.	10621(c)		Section 1.3 Appendix B-1
54	Provide supporting documentation that the urban water management plan has been or will be provided to any city or county within which it provides water, no later than 60 days after the submission of this urban water management plan.	10635(b)	To be included in future UWMP amendments	Section 1.3
55	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.	10642		Section 1.3 Appendix B-2
56	Provide supporting documentation that the urban water supplier made the plan available for public inspection and held a public hearing about the plan. For public agencies, the hearing notice is to be provided pursuant to Section 6066 of the Government Code. The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water. Privately-owned water suppliers shall provide an equivalent notice within its service area.	10642		Section 1.3 Appendix B-2
57	Provide supporting documentation that the plan has been adopted as prepared or modified.	10642	Future resolutions to be provided for future amendments	Section 1.3 Appendix B-1
58	Provide supporting documentation as to how the water supplier plans to implement its plan.	10643		Appendix B-1

No.	UWMP requirement <sup>a</sup>	Calif. Water Code reference	Additional clarification	UWMP location
59	Provide supporting documentation that, in addition to submittal to DWR, the urban water supplier has submitted this UWMP to the California State Library and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. This also includes amendments or changes.	10644(a)	To be included in future UWMP amendments	Section 1.3
60	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the urban water supplier has or will make the plan available for public review during normal business hours	10645	To be included in future UWMP amendments	Section 1.3
	EM DESCRIPTION			
8	Describe the water supplier service area.	10631(a)		Section 2.1.1
9	Describe the climate and other demographic factors of the service area of the supplier	10631(a)		Section 2.1.2 Section 2.1.3
10	Indicate the current population of the service area	10631(a)		Section 2.1.3 Table 2-2
11	Provide population projections for 2015, 2020, 2025, and 2030, based on data from State, regional, or local service area population projections.	10631(a)	2035 and 2040 can also be provided to support consistency with Water Supply Assessments and Written Verification of Water Supply documents.	Section 2.1.3 Table 2-2
12	Describe other demographic factors affecting the supplier's water management planning.	10631(a)		Section 2.1.4
SYSTE	EM DEMANDS			
1	Provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	10608.20(e)		Section 4.4
2	Wholesalers: Include an assessment of present and proposed future measures, programs, and policies to help achieve the water use reductions. Retailers: Conduct at least one public hearing that includes general discussion of the urban retail water supplier's implementation plan for complying with the Water Conservation Bill of 2009.	10608.36 10608.26(a)	Retailers and wholesalers have slightly different requirements	Section 1.3 Appendix B-2
3	Report progress in meeting urban water use targets using the standardized form.	10608.40		N/A form not yet available

No.	UWMP requirement <sup>a</sup>	Calif. Water Code reference	Additional clarification	UWMP location
25	Quantify past, current, and projected water use, identifying the uses among water use sectors, for the following: (A) single-family residential, (B) multifamily, (C) commercial, (D) industrial, (E) institutional and governmental, (F) landscape, (G) sales to other agencies, (H) saline water intrusion barriers, groundwater recharge, conjunctive use, and (I) agriculture.	10631(e)(1)	Consider 'past' to be 2005, present to be 2010, and projected to be 2015, 2020, 2025, and 2030. Provide numbers for each category for each of these years.	Appendix A-1 (Tables 3 to 7) Section 4.1 Section 4.2 Section 4.3 Section 4.4
33	Provide documentation that either the retail agency provided the wholesale agency with water use projections for at least 20 years, if the UWMP agency is a retail agency, OR, if a wholesale agency, it provided its urban retail customers with future planned and existing water source available to it from the wholesale agency during the required water-year types	10631(k)	Average year, single dry year, multiple dry years for 2015, 2020, 2025, and 2030.	Section 3.4 Appendix C-3 Sent a Copy of UWMP
34	Include projected water use for single-family and multifamily residential housing needed for lower income households, as identified in the housing element of any city, county, or city and county in the service area of the supplier.	10631.1(a)		Section 4.3.6
SYSTE	M SUPPLIES			
13	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, and 2030.	10631(b)	The 'existing' water sources should be for the same year as the "current population" in line 10. 2035 and 2040 can also be provided.	Section 3.9
14	Indicate whether groundwater is an existing or planned source of water available to the supplier. If yes, then complete 15 through 21 of the UWMP Checklist. If no, then indicate "not applicable" in lines 15 through 21 under the UWMP location column.	10631(b)	Source classifications are: surface water, groundwater, recycled water, storm water, desalinated sea water, desalinated brackish groundwater, and other.	Section 3.5
15	Indicate whether a groundwater management plan been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	10631(b)(1)	-	Section 3.5.5 Appendix D-1
16	Describe the groundwater basin(s).	10631(b)(2)		Section 3.5.2 Section 3.5.4
17	Indicate whether the groundwater basin is adjudicated? Include a copy of the court order or decree.	10631(b)(2)		N/A

No	UWMP requirement <sup>a</sup>	Calif. Water Code reference	Additional clarification	UWMP location
No.			Additional clarification	
18	Describe the amount of groundwater the urban water supplier has the	10631(b)(2)		N/A
	legal right to pump under the order or decree. If the basin is not			
	adjudicated, indicate "not applicable" in the UWMP location column.			
19	For groundwater basins that are not adjudicated, provide information as to	10631(b)(2)		Section 3.5.4
	whether DWR has identified the basin or basins as overdrafted or has			
	projected that the basin will become overdrafted if present management			
	conditions continue, in the most current official departmental bulletin that			
	characterizes the condition of the groundwater basin, and a detailed			
	description of the efforts being undertaken by the urban water supplier to			
	eliminate the long-term overdraft condition. If the basin is adjudicated,			
	indicate "not applicable" in the UWMP location column.			
20	Provide a detailed description and analysis of the location, amount, and	10631(b)(3)		Section 3.5.1
	sufficiency of groundwater pumped by the urban water supplier for the			Table 3-5
	past five years			
21	Provide a detailed description and analysis of the amount and location of	10631(b)(4)	Provide projections for 2015,	Section 3.5.2
	groundwater that is projected to be pumped.		2020, 2025, and 2030.	Table 3-6
24	Describe the opportunities for exchanges or transfers of water on a short-	10631(d)		Section 3.8
	term or long-term basis.			
30	Include a detailed description of all water supply projects and programs	10631(h)		Section 3.9.4
	that may be undertaken by the water supplier to address water supply			
	reliability in average, single-dry, and multiple-dry years, excluding demand			
	management programs addressed in (f)(1). Include specific projects,			
	describe water supply impacts, and provide a timeline for each project.			
31	Describe desalinated water project opportunities for long-term supply,	10631(i)		Section 3.7
	including, but not limited to, ocean water, brackish water, and	•		
	groundwater.			
44	Provide information on recycled water and its potential for use as a water	10633		Section 3.6
	source in the service area of the urban water supplier. Coordinate with			Section 7
	local water, wastewater, groundwater, and planning agencies that operate			
	within the supplier's service area.			
45	Describe the wastewater collection and treatment systems in the	10633(a)		Section 7.1
	supplier's service area, including a quantification of the amount of	. ,		Section 7.2
	wastewater collected and treated and the methods of wastewater			Table 7-2
	disposal.			Table 7-3

No.	UWMP requirement <sup>a</sup>	Calif. Water Code reference	Additional clarification	UWMP location
46	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	10633(b)		Section 7.2 Table 7-3
47	Describe the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.	10633(c)		Section 7.2 Table 7-2
48	Describe and quantify the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.	10633(d)		Section 7.3 Section 7.6
49	The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.	10633(e)		Section 7.6 Table 7-6 DWR Table 23
50	Describe the actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.	10633(f)		Section 7.5 DWR Table 25
51	Provide a plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.	10633(g)		Appendix D-4
WATE	R SHORTAGE RELIABILITY AND WATER SHORTAGE CONTINGENCY PLA	ANNING <sup>b</sup>		
5	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	10620(f)		N/A (all in region) Section 5
22	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage and provide data for (A) an average water year, (B) a single dry water year, and (C) multiple dry water years.	10631(c)(1)		Section 3.9
23	For any water source that may not be available at a consistent level of use - given specific legal, environmental, water quality, or climatic factors - describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.	10631(c)(2)		N/A Section 5 Section 3.9.2 Section 3.9.3
35	Provide an urban water shortage contingency analysis that specifies stages of action, including up to a 50-percent water supply reduction, and an outline of specific water supply conditions at each stage	10632(a)		Section 6

		Calif. Water		
No.	UWMP requirement <sup>a</sup>	Code reference	Additional clarification	UWMP location
36	Provide an estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.	10632(b)		Section 3.9.4 Section 8.3 Table 8-3 Appendix A-1 DWR Table 31
37	Identify actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.	10632(c)		Section 6
38	Identify additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.	10632(d)		Section 6.3 Section 6.4
39	Specify consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.	10632(e)		Section 6.5
40	Indicated penalties or charges for excessive use, where applicable.	10632(f)		Section 6.4
41	Provide an analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.	10632(g)		Section 6.5
42	Provide a draft water shortage contingency resolution or ordinance.	10632(h)		Appendix B-4
43	Indicate a mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.	10632(i)		Section 6.8
52	Provide information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments, and the manner in which water quality affects water management strategies and supply reliability	10634	For years 2010, 2015, 2020, 2025, and 2030	DWR Table 30 Section 3

No.	UWMP requirement <sup>a</sup>	Calif. Water Code reference	Additional clarification	UWMP location
53	Assess the water supply reliability during normal, dry, and multiple dry water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. Base the assessment on the information compiled under Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.	10635(a)		Section 8
DEMA	ND MANAGEMENT MEASURES			
26	Describe how each water demand management measures is being implemented or scheduled for implementation. Use the list provided.	10631(f)(1)	Discuss each DMM, even if it is not currently or planned for implementation. Provide any appropriate schedules.	Section 5.2 Table 5-1
27	Describe the methods the supplier uses to evaluate the effectiveness of DMMs implemented or described in the UWMP.	10631(f)(3)		Section 5.2 (included in each heading)
28	Provide an estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the ability to further reduce demand.	10631(f)(4)		Not Available
29	Evaluate each water demand management measure that is not currently being implemented or scheduled for implementation. The evaluation should include economic and non-economic factors, cost-benefit analysis, available funding, and the water suppliers' legal authority to implement the work.	10631(g)	See 10631(g) for additional wording.	Section 5.1 Section 5.2
32	Include the annual reports submitted to meet the Section 6.2 requirements, if a member of the CUWCC and signer of the December 10, 2008 MOU.	10631(j)	Signers of the MOU that submit the annual reports are deemed compliant with Items 28 and 29.	Not a CUWCC member

a The UWMP Requirement descriptions are general summaries of what is provided in the legislation. Urban water suppliers should review the exact legislative wording prior to submitting its UWMP.

b The Subject classification is provided for clarification only. It is aligned with the organization presented in Part I of this guidebook. A water supplier is free to address the UWMP Requirement anywhere with its UWMP, but is urged to provide clarification to DWR to facilitate review.

Appendix B-1 – Resolution Adopting the 2010 UWMP					

### RESOLUTION NO. 2011- 104

## A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF LINCOLN ADOPTING AND DIRECTING THE CITY MANAGER TO FILE WITH THE CALIFORNIA DEPARTMENT OF WATER RESOURCES THE CITY OF LINCOLN 2010 URBAN WATER MANAGEMENT PLAN UPDATE

WHEREAS, the California Legislature enacted Assembly Bill 797 during the 1983-1984 Regular Session of the California Legislature (Water Code §10610 et seq.), known as the Urban Water Management Planning Act, which mandates that every urban supplier of water providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre feet of water annually, prepare an Urban Water Management Plan (Plan); and

WHEREAS, City of Lincoln did prepare and file said Plan with the California Department of Water Resources in 2002, as well as an Update of said Plan in 2005; and

**WHEREAS**, AB 797 requires that said Plan be periodically reviewed at least once every five years, and that the urban water supplier shall make any amendments or changes to its plan which are indicated by the review; and

WHEREAS, SBx7-7 (Water Code §10608 20(b)) requires that the City of Lincoln adopt a method for determining its urban water use target, and City of Lincoln has assessed the available methods, has allowed for community input and considered the economic impacts of the methods, and has determined the appropriate method to be Method 1 (Eighty percent of baseline per-capita water use), and has prepared said Plan using this method; and

**WHEREAS**, SBx7-7 (Water Code §10608.20 et seq ) requires that the 2010 update of said Plan be adopted after public review and hearing, and filed with the California Department of Water Resources by August 1, 2011; and

**WHEREAS**, the City of Lincoln is an urban water supplier providing water to a population of over 41,000, and has prepared for public review a 2010 Urban Water Management Plan Update, in compliance with the requirements of AB 797 and SBx7-7, and a properly noticed public hearing regarding said Plan Update was held by the City Council of the City of Lincoln on July 12, 2011.

**NOW, THEREFORE BE IT RESOLVED,** that the City Council of the City of Lincoln hereby adopts and directs the City Manager to file with the California Department of Water Resources before August 1, 2011 the City of Lincoln 2010 Urban Water Management Plan Update, in accordance with AB 797 and SBx7-7.

## PASSED AND ADOPTED this 12th day of July, 2011, by the following roll call vote.

AYES

COUNCILMEMBERSire, Short, Cosgrove, Nader, Hydrick, Joiner

NOES:

COUNCILMEMBERS.

ABSENT:

COUNCILMEMBERS:

ATTEST:

Appendix B-2 – Copies of General Notice Publications						

## OH

# Public Notices

16403867

FILED JUNE 6, 2011 FICTITIOUS BUSINESS FILE NO. 11-01369 NAME STATEMENT

...The Jolinwing necong(s) is (are) sess their financial situation and to explore options to avoid foreclosure by one of the following to contact the borrower(s) to as-

methods: by telephone; by United States mail; either 1st class or certified; by overnight delivery; by personal delivery; by enail; by face to face meeting. DATE: 0.59.45-2041 9.2041 6.3817777 PUBLISHED IN LINCOLN NEWS MESSENGER: 06/16/11, June 13, 2011. (R-381) 06/16/11, 06/23/11, 06/30/11)

FEI # 1006.136798 06/23/11 06/30/11

NOTICE OF TRUSTEE'S SALE
TS No. 11-0019706 Title OrIT MAY EF SOLID AT A POBLIC
SALE. IF YOU NEED AN EXPLANATION OF THE NATURE
OF THE PROCEEDING OF THE PROCEEDING AGAINST YOU, YOU SHOULD CONTACT A LAWYER. Notice is pointed trustee pursuant to the Deed of Trust executed by HER-RERT WONG AN HAMARRIED hereby given that RECONTRUST COMPANY, N.A., as duly ap-

address or other common designation, if any, shown herein.

Trustor(s): Jennifer L. Hopper and Bill B. Watter, wife and huscorded 09/27/06, as Instrument No. 2006-0102838, in Book Page ), of Official Records in the office of the County Recorder of Renec Gaulth state of ഗ്വചള്ള Deed of Trust. The undersigned Trustee disclaims any liability for any incorrectness of the property band Recorded: 07/03/03, as Instrument: No. 2003-0110943,of MAN, dated 09/19/2006 and re-

Street, Roseville,

it has obtained from the Commissioner of Corporations a CHUS PODE SPOTION 7.923,554 IDAL OBTAINED WILL BE USED FOR THAT PURPOSE. NDEx West, L.L.C. as Trustee, BY: Ric Juarez Dated: 06/06/11 LINCOLN or servicing agent declares final or temporary order of exemption pursuant to California NPP0182195 06/16/11, 06/23/11, Z **PUBLISHED** Notice of Default and Election to Sell. The undersigned caused said Notice of Default and Elec-tion to Sell to be recorded in the delivered to the undersigned a Sale: At the main entrance of the 260 การครายการครา written Declaration of Default and Demand for Sale, and a written 07/06/11 at 12:00 PM Place of Hall Annex, 316 Vernon t, Roseville, CA The pur-

Fictitious Business Name with us, call (916) 774-7963 now to receive your **FREE AD**! POST BUSINESS! If you published your 06/23/11, 06/30/11

NEWS MESSENGER: 06/16/11,

County where the real property is located. If the sale is set aside for any reason, the Purchaser at

Official Records of PLACER

the sale shall be entitled only to a return of the deposit paid. The Purchaser shall have no further

recourse against the Mortgagor, Mortgagee's Trustee. The benefi-

Mortgagee

16402805

NOTICE OF PETITION TO ADMINISTER ESTATE OF CASE NO. SPR 0006238 MICHAEL A. BOEHM

and persons who may otherwise be interested in the will or estate, or both, of: MICHAELA, BOEHIM
A PETITION FOR PROBATE has been filed by: LINDA To all heirs, beneficiaries, creditors, contingent creditors,

BOEHM in the Superior Court of California, County of PLACER THE PETITION FOR PROBATE requests that: LINDA BOEHM be appointed as personal representative to administer the estate of the decedent.

THE PETITION requests authority to administer the estate under the Independent Administration of Estates Act. (This authority will allow the personal representative to take many achowever, the personal representative have waived notice or consented to the proposed action.) The independent administration authority will be granted unless an interested person files an objection to the petition and shows tions without obtaining court approval. Before taking certain will be required to give notice to interested persons unless they important actions, very

good cause why the court should not grant the authority.

A HEARING on the petition will be held in this court as follows: July 12, 2011 at 1:00 p.m. in Dept. 40 located at Superior Court of California, County of Placer, Bill Santucci Justice. Center, 10820 Justice Center Dr., Roseville, CA 95678. Mailing address: P.O. Box 619072, Roseville, CA 95661-9072.

IF YOU OBJECT to the granting of the petition, you should appear at the hearing and state your objections or file written objections with the court before the hearing. Your appearance may be in person or by your attorney.

IF YOU ARE A CREDITOR or a contingent creditor of the

decedent, you must file your claim with the court and mail a within four months from the date of first issuance of letters as copy to the personal representative appointed by the court provided in Probate Code section 9100, The time for filing claims will not expire before four months from the hearing date noticed above

YOU MAY EXAMINE the file kept by the court. If you are a person interested in the estate, you may file with the court a Request for Special Notice (form DE-154) of the filing of an inventory and appraisal of estate assets or of any petition or account A Request for special Notice form is available from the court clerk. provided in Probate Code section 1250. as

Attorney for petitioner: Thomas M. Boehm, Esq. 2 North Santa Cruz Avenue, Suite 211, Los Gatos, CA 95030 (408) 998-8899 Fax. No. (408) 998-4848

Signed: Thomas M. Boehm

PUBLISHED IN LINCOLN NEWS MESSENGER: JUNE 9, 16, 23, 2011

## NOTICE OF AVAILABILITY OF 2010 DRAFT URBAN WATER MANAGEMENT PLAN UPDATE AND PUBLIC HEARING TO RECEIVE COMMENTS CITY OF LINCOLN 16405461

NOTICE IS HEREBY GIVEN that the City of Lincoln's Draft 2010 Urban Water Management Plan Update (Draft Update) is available for public review and comment, and that the City Council

of the City of Lincoln has set a public hearing to receive comments on the Draft Update. The public hearing is to be conducted on July 12, 2011 beginning at 6:30 PM at the City of Lincoln's City Council meeting, which is located at McBean Park Pavilion located at 65 McBean Park Drive in Lincoln.

NOTICE IS FURTHER GIVEN that, as part of the public hearing on the Draft Update, the City of Lincoln will conduct a public hearing on the Draft Update, the City of Lincoln will conduct a public hearing on the Draft Update, in Colficonia Water Code (CWC) § 10608.20, for determining its urban water use target in 2020, (2) allow community input regarding its plan for achieving the water conservation provisions of its Draft Update, and (3) consider the economic impacts of its implementation plan for achieving its 2020 urban water use target

Copies of the Draft Update are available for public review at the Development Services Department at 600 Sixth Street, Lincoln, CA 95848 during normal business hours or at the City's website www.ci.lincoln.ca.us on or after June 28, 2011. Members of the public are invited to present their views on the Draft Update, including the water conservation provisions of the Draft Update required pursuant to CWC § 10608 et seq. Comments may be presented during the public hearing on on July 12, 2011 beginning at 6:30 PM or may be submitted in writing, addressed to Patricia Avila, City Clerk or Bruce Burnworth, City Engineer, City of Lincoln at 600 Sixth Street, Lincoln, CA 95648

The City of Lincoln and the State of California does not discriminate in the housing nor employment on the basis of race, religion, sex age, national origin, or handicap. The location of the public hearing is fully accessible to mobility impaired individuals. In compliance with the Americans with Disabilities Act, the City of Lincoln encourages those persons with disabilities to participate fully in the public hearing process. If you have special needs to allow you to attend or participate in this public hearing process, please contact our office at (916) 434-2470 prior to the public hearing, so that we may accommodate you.

Si necesita información en español sobre esta notificación por

favor llame al (916) 434-2470, pregunte por George Dellwo.

30 Patricia Avila, City Clerk
PUBLISHED IN LINCOLN NEWS MESSENGER: JUNE 23,
JULY 7, 2011

16404299

OF CALL OF REGULAR OPERATION AND MAINTENANCE
ASSESSMENT IN RECLAMATION DISTRICT 1001 (BEING THE
THIRTY NINTH CALL, BASED ON THE SIXTH ASSESSMENT
ROLL OF SAID DISTRICT): (Sutter and Placer Counties). The
PRINCIPLE PLACE of business of the District is 1959 Cornelius Avenue, Rio Oso, 95674, County of Sutter, California.

Tustees of Reclamation District 1001, held on the 25th day of May, 2011, an order was duly made and entered in the minutes of said Board, fixing and recting that it is necessary to raise the sum of Six Hundred Twenty Two Thousand, One Hundred Seventy Five Dollars and Fifty Six Cents (\$622,175.56) for the construction, maintenance and repair of works of reclamation and incidental ex-

the assessment list thereof, prepared and approved in accordance with law, and set a minimum assessment of TWENTY-FIVE DOL-LARS (\$25.00); and said assessment was ordered to be paid within sixty (60) days from the first day of July, 2011, to the office of Reclamation District 1001, 1959 Cornelius Avenue, Rio Oso, CA penses of District: and said order further fixed and called. FIFTEEN DOLLARS AND FIFTY CENTS (\$15.50) on each ONE HUNDRED DOLLARS (\$100.00) Assessed Valuation shown on

paid after the 29th day of August, 2011, WILL BE DELINQUENT, together with accrued interest at the rate of 1.5% per month from Said Assessments or any portion thereof which shall remain undelinquent date plus penalty of ten (10) percent. Said assessment not paid shall be subject to the following additional fees which include administrative costs incurred during the delinquency process: \$50.00-Publication for Sale; \$75.00-Struck Off (Sold) for Non Payment, \$75.00-Certificate of Redemption.

subscribed hereto by its Secretary, thereunto duly authorized on this 25th day of May 2011. WITNESS the name of said RECLAMATION DISTRICT 1001

Diane Fales, Secretary/Manager Reclamation District 1001

1959 Cornelius Avenue

Rio Oso, CA 95674 PUBLISHED IN LINCOLN NEWS MESSENGER: JUNE 16, 23, 2011

## Thursday, June 30, 2011 LINCOLN NEWS MESSENGER

6405516

dersigned Trustee disclaims and NITY PROPERTY WITH RIGHT OF SURVIVORSHIP, dated recorded and 05/02/2005

to be: 656 NEWBRIDGE LANE LINCOLN CA, 95648 The un-05/20/05\_ as Instrument No.

16405461

NOTICE OF AVAILABILITY OF 2010 DRAFT URBAN WATER
MANAGEMENT PLAN UPDATE
AND PUBLIC HEARING TO RECEIVE COMMENTS
CITY OF LINCOLN

of the City of Lincoln has set a public hearing to receive comments on the Draft Update. The public hearing is to be conducted on July 12, 2011 beginning at 6:30 PM at the City of Lincoln's City Council meeting, which is located at McBean Park Pavilion located at 65 NOTICE IS HEREBY GIVEN that the City of Lincoln's Draft 2010 Urban Water Management Plan Update (Draft Update) is available for public review and comment, and that the City Council McBean Park Drive in Lincoln.

on the Draft Update, the City of Lincoln will conduct a public hearing to: (1) adopt a method, pursuant to California Water Code (CWC) § 10608.20, for determining its urban water use target in 2020. (2) allow community input regarding its plan for achieving the water conservation provisions of its Draft Update, and (3) consider. NOTICE IS FURTHER GIVEN that, as part of the public hearing the economic impacts of its implementation plan for achieving its 2020 urban water use target.

16335566

Copies of the Draft Update are available for public review at the Development Services Department at 600 Skth Street, Lincoln, CA 95848 during normal business hours or at the City's website www.ci.lincoln.ca.us on or after June 28, 2011. Members of the ing the water conservation provisions of the Draft Update required pursuant to CWC § 10608 et seq. Comments may be presented during the public hearing on on July 12, 2011 beginning at 6:30 PM or may be submitted in writing, addressed to Patricia Avita, City Clerk or Bruce Burnworth, City Engineer, City of Lincoln, at 600 public are invited to present their views on the Draft Update, includ-Sixth Street, Lincoln, CA 95648.

nate in the housing nor employment on the basis of race, religion, sex age, national origin, or handicap. The location of the public The City of Lincoln and the State of California does not discrimhearing is fully accessible to mobility impaired individuals.

In compliance with the Americans with Disabilities Act, the City of Lincoln encourages those persons with disabilities to participate fully in the public hearing process. If you have special needs to allow you to attend or participate in this public hearing process, please contact our office at (916) 434-2470 prior to the public hearing, so that we may accommodate you.

Si necesità información en español sobre esta notificación por favor llame al (916) 434-2470, pregunte por George Dellwo.
Patricia Avila, City Clerk

Patricia Avila, City Clerk
PUBLISHED IN LINCOLN NEWS MESSENGER: JUNE 23, 30, JULY 7, 2011

Or any other legal document that you might need to have pub-

Summons

Give us a Call Today

lished.

Name Changes Notice To Creditors Petition To Administer an Estate Petition For Probate

the Financial Code and authorized to do business in this state Said sale will be made, in an "AS or encumbrances, to satisfy the indebtedness secured by said and the unpaid principal of the frust with interest thereon as Note secured by said Deed of provided in said Note, plus fees, charges and expenses of the condition, but without cove-Deed of Trust, advances thereunder, with interest as provided Frustee and of the trusts created nant or warranty, express or implied, regarding title, possessior by said Deed of Trust DATED 01/18/2009 RECONTRUST for any incorrectness of liability ŝ

COMPANY 1800 Tapo Canyon

Public Notices

MESSENGER: 06/30/2011, PUBLISHED NEWS

16405525 ASAP# 4022728 06/23/2011, 07/07/2011

NOTICE OF TRUSTEE'S SALE
Trustee Sale No. 11-00760-3
CA Loan No. 0066480658 Title
Order No. 110128219-CA-MAI
APN 330-120-003-000 YOU ARE
IN DEFAULT UNDER A DEED
OF TRUST DATED JUNE 29,
2006 UNLESS YOU TAKE AC.
TION TO PROTECT YOUR
PROPERTY, IT MAY BE SOLD
AT A PUBLIC SALE IF YOU

interest thereon fees, charges and expenses of the Trustee for the total amount (at the time of

the initial publication of the No-

cial code สิกชาสมเกิบกระชางิ ขอ

event no

ได้นร จนรีที่ศิริร กลิทษารากราคฉ the Placer County Clerk on date This statement was filed with I hereby certify that this copy is a correct copy of the original statement on file in my office Refile statement expires June 21 Jim McCauley, County Clerk By S. Jennings, Deputy indicated by file stamp above. above on: N/A the late charges thereon, as provided in the note(s), advances, under the terms of the Deed of Trust, business in this state, will be held by duly appointed trustee. The sale will be made, but without covenant or warranty, expressed and implied, regarding title, pospay the remaining principal sum session, or encumbrances, of the note(s) secured by Deed of Trust, with interest

IN LINCOLN NGER: JUNE FICTITIOUS BUSINESS NAME STATEMENT 2016 PUBLISHED IN LINC NEWS MESSENGER: 30, JULY 7, 14, 21, 2011 FILE NO. 11-01501 FILED JUNE 22, 2011 16406045

ELECT TO BID LESS THAN THE TOTAL AMOUNT DUE Trustor(s): MITZIE DIANA SAMBUENO AN UNMARRIED amount may be greater on the day of sale BENEFICIARY MAY WOMAN Recorded: 11/7/2006 tice of Sale) reasonably estimated to be set forth below Instrument

2006-0120033.00 in book XXX page XXX of Official Records in the office of the Recorder of PLACER County Californa Date of Sale 7/14/2011 at 10:00:00 AM Place of Sale At the main entrance of the City Hall Annex, 316 Vernon St. balance and other charges herein if no street address or enced legal description for prop-Roseville, CA Amount of unpaid \$327,902.47 The purported propsigned Trustee disclaims any liability for any incorrectness of the property address or other comother common designation is shown, please refer to the refererly address is 1064 ASHFORD 327-320-001-000 The undermon designation, if any, shown LN LINCOLN, CA Parcel Assessor's

We publish the following notices in any of our Placer County and Sacramento County Publications:
Alcoholic Beverage Control (ABC)
Fictitious Business Names
Abandonment of Fictitious Business Names

DO YOU HAVE ANY LEGAL NOTICES TO BE PUBLISHED?
We do them for Placer County and Sacramento County
Call our Legal Department at 916-774-7946
We will be more than happy to assist you

doing business as. PikėAir, 1057 Hollingsworth Drive, Lincoln, CA 95648 The following person(s) is (are)

lingsworth Drive, Lincoln, CA 95648 Gregory Dee Piker, 1057 Hol.

This business is conducted by: Signed: Greg Piker an individual

The registrant(s) commenced to fransact business under the fictitious business name(s) listed above on: N/A

I hereby certify that this copy is the Placer County Clerk on date This statement was filed with a correct copy of the original Refile statement expires June 22 Jim McCauley, County Clerk indicated by file stamp above. statement on file in my office. By S. Jennings, Deputy

2016 PUBLISHED IN LINCOLN NEWS MESSENGER: JUNE 30, JULY 7, 14, 21, 2011

TREASURE CHEST

and Bag. \$60 (916) 626-2718

coffee table with oak claw feet \$225, 1850 Coleman generator \$200 Armoire cherry cabinet, fits 36" TV, good cond \$225 chest, excl. cond. \$325, 1960 oak PROJECTION Screen TV \$155 A/C window unit \$70, 1950 cedar

CASH FOR YOUR UNUSED DIABETIC TEST STRIPS parts mowers etc Randy at 530-477-2084 l will pick up, appliances, car

changes to day bed & twin head-board Waterproof Mattress in-cluded. Dresser has spot for changing pad/book shelf Made by Bassett Items sold together \$300 Pics avail (530)887-1453 3 in 1 CRIB and DRESSER -Crib

\$275 each Also have 2 one-year olds with shots Need homes \$75 (916) 276-8041 (916) JACK RUSSELL purebred pups 9 weeks, thicolor & brwn/wht

υνα s ρυτεστευ great εγτεπεες Mom is Akbash Maremma, Ana-tolian shepherd \$250 916-240-3338

AUBURN Sat & Sun 7/2 & 7/3 8 am-4pm COMMUNITY YARD SALE Furniture, Décor, Electronics, Kitchen stuff, Dishes, Linens, Yard furniture, Tools, Clothing & shoes, Horse tack, Books, Toys, Costume Jewelry, CDs, etc. 2534 Gayle Lane Obrietion Volter THE THE WATER TO STREET

Treasure Chest

(Cal-SCAN)

or emandboys@att.net CASH EOD KOLID LIMILOED & unexpired Call for details, Kristi (530) 231-3573 Must be factory sealed

## Public Notices

all right, title and interest conveyed to and now held by it under said Deed of Trust in the property hereinafter described: Truston DM/D J NELISON LESUIE A NELISON Recorded of Trust development of the Necorded of PLACER County, CALIFORNIA, pursuant to the Notice of Default and Election to Sell thereunder recorded April 1, 2011 as Inst. No. 2011-0026245 in Book — Page — of Official Records in the office of the Recorder of PLACER County CALIFORNIA, Said Deed of Trust describes the following property. ExtriBIT Var THE LAND RETACE OF CALIFORNIA, CUMNOXPROARTED AREA). COUNTY OF PLACER AND IS DESCRIBED AS FOLLOWS: PARCEL ONE THAT PORTION OF THE SOUTHWEST QUARTER OF SECTION OF THE OFFICE OF THE RECORDER OF PLACER COUNTY OF PARCEL MAPP. AT PAGE 15, PLACER AND DESCRIBED AS PARCEL. NOWTHIN 12 THE LAND SHOWN AND DESCRIANT RECORDS PARCEL IN THAT PORTION OF THE SOUTHWEST QUARTER OF SECTION OF THE SOUTHWEST QUARTER OF SECTION OF THE SOUTHWEST QUARTER OF SECTION OF THE SOUTHWEST OUT SOUTHWEST QUARTER OF SECTION OF THE SOUTHWEST OUT SOUTHWEST QUARTER OF SECTION OF THE SOUTHWEST QUARTER OF WAICH IS THE SOUTHWEST QUARTER OF WAICH SOUTHWEST QUARTER OF WAICH OF THE SOUTHWEST QUARTER OF WAICH SOUTHWEST OUT OF THE SOUTHWEST QUARTER OF WAICH SOUTHWEST OUT OF THE SOUTHWEST QUARTER OF WAICH SOUTHWEST OUT OF THE REAL THE ATTACHED OR AFFIXED BUILDINGS WINDOW OF HEREAFTER ON THE REAL RATCHED OR AFFIXED TO THE RESIDENCY SOUTHWEST OUT ON THE PROPERTY TOWN SHE SOUTHWEST OUT OF 0256002254/NEILSON INCOMENT No. 72009459 AP #1 031-440-053-000 T.D. SERVICE COMPANY, as duly appointed Trustee under the following described Deed of Trust WILL SELL AT PUBLIC AUCTION TO THE HIGHEST BIDDER FOR CASH (in the forms which are lawful tender in the United States) and/or the cashler's, certified or other checks specified in Gvil Code Section 2924h (payable in full at the time of sale to T.D. Service Company) all right, title and interest conveven to and now the company) FILE NO. 11-01369 T.S. No. #525767 CA

Paula Faith Dabney\_2720 tee under and pursuant to Deed forms of operation after the otherwise applicable engine Teplaces. ment date before mandated replacement

a cumulative maximum of 2,000 hours of operation after the otherwise applicable engine replacement date before mandated replacement. Regardless of cumulative hours, an intermittent-use enginemust be replaced in either 2020 or 2025 depending on the engine Intermittent-Use Engine Exemption. Allows an engine to operate

on the proposed amendment. The proposed amended rule and its support document can be viewed at the Districts website at www.placer.ca.gov/apcd Written comments should be addressed to Thomas J. Christoff, Air Pollution Control Officer, at the District office located at 110 Maple Street, Auburn. CA 95603. The All interested parties are advised of the opportunity to comment District phone number is (530) 745-2330. PUBLISHED IN LINCOLN NEWS MESSENGER: JULY 7, 2011

ASAP# 4020593

NOTICE OF TRUSTEE'S SALE

and interest conveyed to and now held by the trustee in the hereination described property under and pursuant to the Deed of Trust. The sale will be made, but without covenant or warranty, expressed or implied, regarding title, possession, or encumbrances, to pay the remaining principal sum of the note(s) secured by the Deed of Trust, interest thereon, estimated tess, charges and expenses of the Trustee for the total amount (at the time of the mittal publication of the Notice of Sale) reasonably estimated to be set forth below of the Notice of Sale) reasonably estimated to be set forth below of the Notice of Sale) reasonably estimated to be set forth below of the Notice of Sale) reasonably estimated to be set forth below. The amount may be greater on the day of sale Place of Sale AT The amount may be greater on the day of sale Place of Sale AT THE NOTH ENTRANCE TO THE BILL SANTDUCI JUSTICE CENTER LOCATER LOTATE AT NOSO JUSTICE CENTER DRIVE, ROSE OF SHOWN ON PARCEL MAP NO 72057, A DIVISION OF PARCE BAS SHOWN ON PARCEL MAP NO 72057, A DIVISION OF PARCE OUNTY, CALIFORNIA, ON JANUARY 17, 1977, IN BOOK 9 OF PRECENT OF PRECENT OF THE PARCEL GRANTED TO THE COUNTY OF PLACER, RECORDED SEPTEMBER 16, 1965 IN BOOK 1081 PAGE 375, OFFICIAL RECORDS, DESCRIBED AS FOLLOWS. THE NORTHERLY FORTY TWO (42) FEET BE. No. 754501 YOU ARE IN DEFAULT UNDER A DEED OF TRUST DATE Of 02-13-2007. UNLESS YOU TAKE ACTION TO PROTECT YOUN RED AN EXPLANATION OF THE NATURE OF THE PROCEEDINGS AGAINST YOU YOU SHOULD CONTACT A LAWYER ON 07-14-2011 at 9:30 AM. CALIFORNIA RECONVEYANCE Deed of Trust Recorded 02-22-2007 Book NA, Page NA, Instrument 2007-0019088-00, of official records in the Office of the Recorder of PLACER County, California, executed by JAIME OSORIO, A MARRIED MAN AS HIS SOLE AND SEPARATE PROPERTY, as Trustor, DWASHINGTON MUTUAL BANK, FA, as Beneficiary, will sell at public auction sale to the highest bidder for drawn by a state or federal savings and loan association, savings association, or savings bank specified in section 5102 of the Financial Code and authorized to do business in this state. Sale will be cash, cashier's check drawn by a state or national bank, a cashier's check drawn by a state or federal credit union, or a cashier's check held by the duly appointed trustee as shown below, of all right, title,

State or federal credit union or Pleiping you grow tional bank, a check drawn by a Trust, to pay the remaining princi: check drawn on a state of na-

16405461

NOTICE OF AVAILABILITY OF 2010 DRAFT URBAN WATER MANAGEMENT PLAN UPDATE AND PUBLIC HEARING TO RECEIVE COMMENTS

NOTICE IS HEREBY GIVEN that the City of Lincoln's Draft 2010 Urban Water Management Plan Update (Draft Update) is available for public review and comment, and that the City Council CITY OF LINCOLN

of the City of Lincoln has set a public hearing to receive comments on the Draft Update. The public hearing is to be conducted on July 12, 2011 beginning at 6:30 PM at the City of Lincoln so City Council meeting, which is located at McBean Park Pavillion located at 65 McBean Park Drive in Lincoln.

NOTICE IS FURTHER GIVEN that, as part of the public hearing on the Draft Update, the City of Lincoln will conduct a public hearing to (1) adopt a method, pursuant to California Water Code (CWC) \$ 10608.20, for determining its urban water use target in 2020, (2) allow community input regarding its plan for achieving the water conservation provisions of its Draft Update, and (3) consider water conservation provisions of its Draft Update and (3) consider the economic impacts of its implementation plan for achieving its

2020 urban water use target.

Copies of the Draft Update are available for public review at the Development Services Department at 600 Sixth Street, Lincoln, CA 95848 during normal business hours or at the City's website www.ci.lincoln.ca.us on or after June 28, 2011. Members of the public are invited to present their views on the Draft Update, including the water conservation provisions of the Draft Update required pursuant to CWC § 10608 et seq. Comments may be presented during the public hearing on on July 12, 2011 beginning at 6:30 PM or may be submitted in writing, addressed to Patricia Avila. Clerk or Bruce Burnworth. City Engineer. City of Lincoln at Sixth Street, Lincoln, CA 95648.

nate in the housing nor employment on the basis of race, religion, sex age, national origin, or handicap. The location of the public hearing is fully accessible to mobility impaired individuals. The City of Lincoln and the State of California does not discrim-

of Lincoln encourages those persons with disabilities to participate fully in the public hearing process. If you have special needs to allow you to attend or participate in this public hearing process, please contact our office at (916) 434-2470 prior to the public hearin compliance with the Americans with Disabilities Act, the City

Patricia Avila, City Clerk
PUBLISHED IN LINCOLN NEWS MESSENGER: JUNE 23, 30, JULY 7, 2011 ing, so that we may accommodate you.

Si necesita información en español sobre esta notificación por favor llame al (916) 434.2470, pregunte por George Deliwo.

SPR 0006276

NOTICE OF PETITION TO ADMINISTER ESTATE OF BARBARA MARIE GONZALES, aka BARBARA M. GON. ZALES, aka BARBARA GONZALES CASE NO. SPR 0006276

To all heirs, beneficiaries, creditors, contingent creditors, and persons who may otherwise be interested in the will or estate, or both, of BARBARA MARIE GONZALES, aka BARBARA GONZALES, aka BARBARA GONZALES, APETITION FOR PROBATE has been filed by LARRY

Appendix B-3 – Copies of Notification Letters Sent					



May 10, 2011

County of Placer
Attn: Michael Johnson, Director of Planning
3091 County Center Drive, Suite 140
Auburn, CA 95603

Dear Mr. Johnson,

The City of Lincoln is preparing an Urban Water Management Plan (UWMP) as required by the California Water Code (CWC). Any city or county within which a water supplier delivers water is to be notified at least 60 days prior to the hearing, the hearing date is yet to be determined, that the UWMP is being reviewed and amendments and changes will be considered. Any city or county within which the city supplies water shall be notified of the date and time of the hearing.

Also, pursuant to CWC § 10608.26, an urban water supplier must also hold at least one public hearing to: (1) allow community input regarding the urban retail water supplier's implementation plan for the water conservation provisions, (2) consider the economic impacts of the urban retail water supplier's implementation plan for complying with CWC § 10608 et seq., and (3) adopt a method, pursuant to subdivision (b) of Section 10608.20, for determining its urban water use target.

This letter serves as notice that the City of Lincoln is currently preparing its 2010 UWMP. The City of Lincoln will ultimately adopt its UWMP, after a public hearing, for submittal to DWR prior to July 31, 2011. It is likely that the City of Lincoln will use the public hearing for review of its UWMP to also meet the public hearing requirements of CWC § 10608 et seq. Once the public hearing date is set, the City of Lincoln will notify the County of Placer of the date and time.

If you have any questions regarding the City of Lincoln's UWMP, please do not hesitate to contact Bruce Burnworth, City Engineer, at (916) 434-2470.

Sincerely,

Bruce Burnworth, City Engineer
Department of Development Services

City Hall 600 Sixth Street Lincoln, CA 95648 (916) 434-2400 www.ci.lincoln.ca.us

Appendix B-4 – Water Shortage Draft Resolution				

### **RESOLUTION 2005-**

## A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF LINCOLN ESTABLISHING A WATER SHORTAGE CONTINGENCY PLAN IN THE EVENT OF SHORTFALLS IN THE WATER SUPPLY SYSTEM

WHEREAS the City of Lincoln depends on treated surface water from the Placer County Water Agency (PCWA) and local groundwater to meet the its water supply needs:

WHEREAS the PCWA has prepared an Urban Water Management Plan that states water shortages may occur; and

WHEREAS a multiple stage Water Shortage Contingency Plan has been prepared that prescribes appropriate responses to projected water supply deficiencies; and

WHEREAS the City is the water purveyor for the property owners and inhabitants of Lincoln; and

WHEREAS the demand for water service is not expected to lessen; and

WHEREAS when the combined total amount of water supply available to the City from all sources falls at or below the Stage II triggering levels described in the 2002 Urban Water Management Plan, the City will declare a water shortage emergency. The water supply would not be adequate to meet the ordinary demands and requirements of water consumers without depleting the City's water supply to the extent that there may be insufficient water for human consumption, sanitation, fire protection, and environmental requirements. This condition is likely to exist until precipitation and inflow dramatically increases or until water system damage resulting from a disaster are repaired and normal water service is restored.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Lincoln hereby directs the Mayor to determine and declare that a water shortage emergency condition exists that threatens the adequacy of water supply, until the City's water supply is deemed adequate. After the declaration of a water shortage emergency, the Mayor is directed to determine the appropriate Rationing Stage and implement the Reduction Methods described in the Water Shortage Contingency Plan section of the City's Urban Water Management Plan.

PASSED AN	D ADOPTED on the day o	f XXXX, by the follo	owing roll call vote:
AYES:	COUNCILMEMBERS:		
NOES:	COUNCILMEMBERS:		
ABSENT:	COUNCILMEMBERS:		
		-	MAYOR
ATTEST:			
CITY CLER	K		

## Appendix B-5 – Meter Study

## **MEMORANDUM**

To: The City of Lincoln

From: Tully & Young

Date: June 1, 2011

Subject: City of Lincoln Water Meter Study

In preparing the City of Lincoln's (City's) 2010 Urban Water Management Plan (UWMP) it became apparent to Tully & Young, Inc. that the demand factors used in previous documents, such as the 2008 General Plan, were unlikely to represent actual use in the city. After expressing this view, we asked for some meter data to conduct a sample meter study to verify or adjust the historic demand factors. In the process of doing this study, actual demand factors were found to be close to historically used values in some cases, but all actual data were found to be lower than previous values used by the City. More in-depth analysis of the demand factors was conducted to provide a more accurate representation of demands due to the high variance in ages of the residential and non-residential structures, differing development styles and the on-going evolution of regulations affecting water use fixtures. This in-depth analysis was carried forward to gain more accurate estimates of the difference between indoor and outdoor demands as well as industrial uses.

### 1. Residential Demand Factors

The previous demand factors used by the City were estimated in the 80's before efficient plumbing codes and while the city was less than 20% of its current size. These demand factors have been losing accuracy with the rapid expansion of the city. With new plumbing codes and changes in development types, which place larger houses on smaller lots, both indoor and outdoor average demands have been dropping. With over 83% of the development occurring since 1993, when efficient plumbing code were in place, the majority of the houses in the city are using less water than assumed in the historical demand factors.

## 1.1. Country Estates

Country Estates are also defined as very low density by the City. This dwelling unit (DU) category has 1.0-2.9 DU/Acre. The demand factor from the 2008 General Plan assumes 1.22 Acre Feet (AF) per DU per Year. This historic demand factor is inclusive of a 15% loss factor, which would make the pre-loss demand factor about 1.06 AF/DU/Yr. Of the meter detail provided, these type of properties were found to be associated with the Catta Vadera type homes. Though the majority of these units are found in the Catta Vadera development, some are found on corner lots or on double lots in other parts of the City. These large homes typically have full

1

property landscaping on lots larger than 1/3 of an acre. The data sample for the meter study consists of monthly billing data from 2010 for about 130 homes in the Catta Vadera community. This sample is estimated to represent just over 15% of the total dwelling units considered to be county estates. To account for vacant homes due to the economy, all minimal use customers were excluded from the sample. As the data is derived from 2010 billing rates, 10% is added to the average demand to normalize against 2010's cooler temperatures and wetter seasons. Even with a 10% reduction, peak summer water use was more than 5 times the indoor only use. The sample did not include any of the larger properties distributed elsewhere in the city but is still considered accurate do to the older homes having less landscaping but using more water indoors due to older plumbing requirements. This variance becomes insignificant when considering the fact that the majority of this housing type was constructed post efficient plumbing restrictions. The result of the meter study is a pre-loss demand factor of .85 AF/DU/Yr for Country Estates in the City of Lincoln.

## 1.2. Low Density Residential

The Low Density Residential (LDR) dwelling unit (DU) category has 3.0-5.9 DU/Acre as defined by the city. The demand factor from the 2008 General Plan assumes 0.61 AF/DU/Yr. This historic demand factor is inclusive of a 15% loss factor, which would make the pre-loss demand factor about 0.53 AF/DU/Yr. Of the meter detail provided, these type of properties were found to be associated with standard single family homes. This unit class can be found in all locations of the City. Due to this unit type making up the majority of the City's construction, there is a large variability in the ages of the structures. The older homes are located on the numbered and lettered streets surrounding the original city center known now as downtown. By inspection of satellite photography it was found that these homes typically had minimal landscaping. The other class of homes was categorized as the post-1993 homes where efficient plumbing standards were in place and development occurred in the tract style where groups of homes would be build at one time. These homes typically have full property landscaping, but these newer style homes commonly take up more of the lot then compared to older homes of this class. The difference in these categories was confirmed with the post-1993 construction having higher peak summer demands and older homes having higher winter only flows. The data sample for the meter study consists of monthly billing values from 2010 for about 460 of the older homes and 550 of the post-1993 homes. These categories produced two different demand factors and were taken as a weighted average of current homes. This sample is estimated to represent just over 10% of the total LDR. An analysis was done to measure the effects of vacant housing by removing the minimal use customers, but no significant change in demand factor was noticed. As the data is derived from 2010 billing rates, 10% is added to the average demand to normalize against 2010's cooler temperatures and wetter seasons. Even with a 10% reduction, peak summer water use was around 4 times the indoor only use. The result of the meter study is a pre-loss demand factor of 0.46 AF/DU/Yr for Low Density Residential homes in the City of Lincoln.

## 1.3. Medium Density Residential

The Medium Density Residential (MDR) dwelling unit (DU) category has 6.0-12.9 DU/Acre as defined by the city. The historic demand factor from the 2008 General Plan assumes 0.52 AF/DU/Yr. This historic demand factor is inclusive of a 15% loss factor, which would make the pre-loss demand factor about 0.45 AF/DU/Yr. Of the meter detail provided, this type of property was found to be associated with duplexes and other larger attached or small lot detached housing. This unit class is found primarily on the west side of the city and is part of all future development plans. Medium density housing is a newer portion of modern development and as a result, the majority of these unit types are new and not subject to great variability in the ages of the structures though there are a number of smaller lots which fall into this category in older parts of the city. Due to the small number of groupings of these structures the sample size was limited to about 55 units. This sample was taken from a range of the structure to improve accuracy in representation but only represents a few percent of the total number of MDR units. An analysis was done to measure the effects of vacant housing by removing the minimal use customers, but no significant change in demand factor was noticed. As the data is derived from 2010 billing rates, 10% is added to the average demand to normalize against 2010's cooler temperatures and wetter seasons. Even with a 10% reduction, peak summer water use was less than 2 times the indoor only use, which reflects the minimal landscaping area associated with MDR. The result of the meter study is a pre-loss demand factor of 0.29 AF/DU/Yr for Medium Density Residential homes in the City of Lincoln.

## 1.4. High Density Residential

The High Density Residential (HDR) dwelling unit (DU) category has 13.0-25.0 DU/Acre as defined by the city. The demand factor form the general plan assumes 0.29 AF/DU/Yr. This historic demand factor is inclusive of a 15% loss factor, which would make the pre-loss demand factor about 0.25 AF/DU/Yr. Of the meter detail provided, this type of property was found to be associated with apartments and townhomes. This unit class is found primarily on the west side of the city and is part of all future development plans. High density housing is a newer portion of the City's development and as a result, the majority of these unit types are new and not subject to great variability in the ages of the structures. Due to the small number of these structures and the number still on master meters, the sample size was about 150 units. This sample is estimated to represent about 10% of the total HDR units. An analysis was done to measure the effects of vacant housing by removing the minimal use customers, but no significant change in demand factor was noticed. As the data is derived from 2010 billing rates, 10% is added to the average demand to normalize against 2010's cooler temperatures and wetter seasons. Even with a 10% reduction, peak summer water use was hardly greater than the indoor only use, which reflects the minimal landscaping area associated with HDR. The result of the meter study is a pre-loss demand factor of .22 AF/DU/Yr for High Density Residential homes in the City of Lincoln.

### 2. Non-Residential Demand Factors

Existing demand factors for the City of Lincoln come from the City's 2008 General Plan. In the course of the meter study, Tully & Young Inc. was given the opportunity to examine some of City of Lincoln Water Meter Study

these demand factors and the assumptions behind them. The results of the meter study will allow for more accurate representation and estimation of future demands from certain non-residential users.

### 2.1. Office/Light Industrial

No calculation was preformed for this demand category. The 2.8 AF/Acre/Yr from the City's 2008 General Plan is appropriate and likely close to the actual value.

### 2.2. Retail/Commercial

A calculation of retail/commercial accounts was preformed using a sample of about 50 accounts. The results of this estimate gave a unit demand factors similar to that of LDR. Due to the large number of commercial customers in small locations, the resulting estimation of 2.625 AF/Acre/Yr is close to the currently used value of 2.8 AF/Acre/Yr. This estimation is based on a very small sample of the commercial customer class and doesn't account for yearly variations in water use due to climate. Due to these factors, the 2.8 AF/Acre/Yr from the City's 2008 General Plan is appropriate and likely close to the actual value.

### 2.3. High Water Use Industrial

High water using industrial customers, such as Gladden McBean and Sierra Pacific, use large quantities of water, but also take up large acreages in the City. No calculation was preformed for this demand category. These demand should be considered as stated demands independent of property acreage.

### 2.4. Public

This category of water user is comprised of municipal land (buildings and grounds), parks, and schools. Current areas in the City include 34 acres of municipal land, 119.6 acres of parks, and 116.7 acres of schools. The demand factor from the 2008 General Plan assumes 5.82 AF/Acre/Yr. This historic demand factor is inclusive of a 15% loss factor, which would make the pre-loss demand factor about 5.06 AF/DU/Yr. These lands were analyzed in two steps. First parks without any sizable indoor facilities were compared with their areas. This resulted in a range of demands with no pattern associated with location in the city. The differences in demand factors for the parks for 2008, 2009, and 2010 were in a small range, which allowed for the average of 3.60 to be selected as the outdoor-only demands. When this lower demand is compared to the associated calculation of landscape demand for the 2010 UWMP (3.73 AF/Acre/Yr using 85% of ETo), there is not much variance. Indoor school demands use the estimate of 2.8 Af/Acre/Yr from the general plan. The indoor park demand is estimated for an average park bathroom as .48 AF/Acre/Yr. <sup>1</sup>

<sup>&</sup>lt;sup>1</sup> 1.7 gallon per visitor x 250 visitors per day x 365 days per year / 325,851 gallons per acre-foot = .48 AF/Acre/Yr City of Lincoln Water Meter Study
June 2011

Land-use coverage percentages were estimated based upon existing City land-use coverages as well as proposed Floor Area Ratios, which serve as an indicator of the "indoor" coverage percentage.<sup>2</sup>

- Parks: For the Park categories, minimal area is devoted to indoor uses and hardscapes. While these figures will vary depending on the location and purpose of the park space, on average, about 5 percent is devoted to the indoor and hardscape categories and 95 percent of the park space is landscaped.<sup>3</sup> This estimate provides a conservatively high demand total for the Park category because the landscape category has a higher unit demand factor than the indoor and hardscape categories.
- *School:* For the School category, Landscape coverage remains at 50%, consistent with historic values. Values of indoor and hardscape are calculated at 25% each.<sup>4</sup>
- *City Property:* City property includes a number of sites around the city which don't always mean city buildings. The resulting estimate of 60% landscape and 20% for indoor and hardscape demands was developed. This assumes that landscaping, not including parks, makes up the majority of the land rather than assume that City property only includes city owned buildings.

A summary of the calculations used to develop the public demand factor is presented in **Table 1**.

Table 1	l – Pu	blic	Demand	Factor	Deve!	lopment
---------	--------	------	--------	--------	-------	---------

Land Use	Aamag	Use Class	Coverage %	Use Class Unit Demand	Land Use Unit Demand
Land Use	Acres	Use Class	Coverage %	(AF/Ac/Yr)	(AF/Ac/Yr)
Parks	119.6	Indoor	2%	0.48	0.0096
		Hardscape	3%	0	0
		Landscape	95%	3.73	3.54
		Total	100%		3.55
Elementary School	116.7	Indoor	25%	2.8	0.7
		Hardscape	25%	0	0
		Landscape	50%	3.73	1.87
		Total	100%		2.57
City Property	34	Indoor	20%	2.8	0.56
		Hardscape	20%	0	0
		Landscape	60%	3.73	2.24
		Total	100%		2.80
Total Public	270.3				3.10

<sup>&</sup>lt;sup>2</sup> Because floor area may comprise building area on more than one story, the coverage percentage may be less than floor area, but without specific knowledge of the ultimate building design, the floor area serves as a reasonable approximation of the area that the building will cover.

<sup>&</sup>lt;sup>3</sup> Tully & Young assessed park coverage by using Google Earth Pro to analyze existing parks.

<sup>&</sup>lt;sup>4</sup> Based upon an electronic map survey conducted by Tully & Young using Google Earth Pro, indoor coverage was increased from the historic value of 10% to 25% and the hardscaped area is reduced accordingly to 25%.

### 3. Summary of the City of Lincoln Demand Factors

This section summarizes the demand factors calculated for the City for use in future planning documents. Some of these numbers are taken from the 2008 General Plan demand factors when data was insufficient to make more accurate estimates or when deemed to still be appropriate. Other demand factors are lower than those used in the 2008 General Plan to more accurately reflect modern demands due to changes in development styles and more efficient water-using fixtures.

A list of the demand factors is presented in **Table 2**.

**Table 2** – City of Lincoln Demand Factors

Existing Demand Factors	2010	Units
Country Estates	0.85	AF/DU/Yr
Low Density	0.46	AF/DU/Yr
Medium Density	0.29	AF/DU/Yr
High Density	0.22	AF/DU/Yr
Industrial/Office	2.80	AF/Ac/Yr
Commercial	2.80	AF/Ac/Yr
Public	3.10	AF/Ac/Yr

# **Appendix C-1 – Contract Agreements**

C98-48

## **Placer County Water Agency**

Business Center: 144 Ferguson Rd. • Mail: P.O. Box 6570 • Auburn, California 95604 (530) 823-4850 800-464-0030 TDD (530) 823-4966

March 10, 1998 File No. 407-4



A Public Agency

BOARD OF DIRECTORS

R.G. Riolo • Walter Fickewirth

Otis Wollan • Lowell Jarvis

W. Bruce Lee

David A. Breninger, General Manager

Ed Tiedemann, General Counsel

Ms. Linda Stackpoole City Clerk CITY OF LINCOLN 1390 First Street Lincoln, CA 95648

SUBJECT:

PCWA - Lincoln Contract

Dear Linda:

I have been informed by the Agency's legal counsel, Mr. Ed Tiedemann, that the recently executed contract between the Agency and the City lacks the appropriate exhibits. Accordingly I am enclosing a copy of Exhibits "A", "B" and "C" which were shown as attachments to the contract when it was FAXED to Mr. Rodney Campbell by Mr. Tiedemann on February 19, 1998, but which were missing from the two signed originals which you forwarded to me last week. Please attach these exhibits to the City's original executed contract, and to any copies of same which you may have made and distributed. I am told by the Agency's planner, Mr. Einar Maisch, that there is a good chance that Exhibit "C" will change in the near future but that, at present, the enclosed are indeed the correct exhibits.

Linda, I apologize for this inconvenience. I hope it will not be too much trouble for your to track down your various copies and make the necessary correction. Call me (823-4861) with any questions or comments, and thank you again for your assistance.

Yours truly,

PLACER COUNTY WATER AGENCY

Barbara Sloan

Clerk, Board of Directors

bms enclosure



EDWARD J. TIEDEMANN

February 19, 1998

### VIA FACSIMILE (916) 645-9502 AND FIRST CLASS MAIL

Mr. Rodney Campbell
Director of Community Development
City of Lincoln
1390 First Street
Lincoln, CA 95648

Re: PCWA - Lincoln Contract

Dear Rod:

I am faxing to you today a copy of the PCWA - Lincoln Contract upon which I have marked the changes made to correct some typos and to clarify that the 7 percent in Article 5(c) refers to a 7 percent increase in any year rather than in each quarter. These changes are on pages 3, 5, 6, 8, and 9. If there are any other changes which need to be made, please let me know.

I am also mailing to you two clean copies of the contract for execution. As you know, the Agency's Board of Directors approved this contract on Tuesday. After it has been approved by your council, the Agency would like to have a signing ceremony at which time the Mayor and the Chairman of the Board can sign the contract.

Thank you for your cooperation in this matter.

Sincerely,

EDWARD J. TIEDEMANN

EJT:mjg Enclosures

cc: David Breninger Einar Maisch Barbara Sloan David Robertson

333743.1

# CITY OF LINCOLN

# COMMUNITY DEVELOPMENT DEPARTMENT Planning Division • Building Division



TELEPHONE 645-3320 FAX 645-9502

1390 FIRST STREET - LINCOLN, CALIFORNIA 95648

March 6, 1998

Einar Maisch Placer County Water Agency P.O. Box 6570 Auburn, Ca. 95604

Re: Exhibit C, Amended City/Agency Contract

Dear Einar:

Enclosed are copies of the cleaned-up version of Exhibit C. If you believe this exhibit will meet our needs, please substitute this version onto your original. We will make the same change at our end. Should you have any concerns, please contact me at your convenience.

Sincerely,

Rodney Campbell
Director Community
Development

cc: Linda Stackpoole, City Clerk

FEB 12 '98 25:14PM PCWL M OFFICE

P.24/24

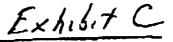
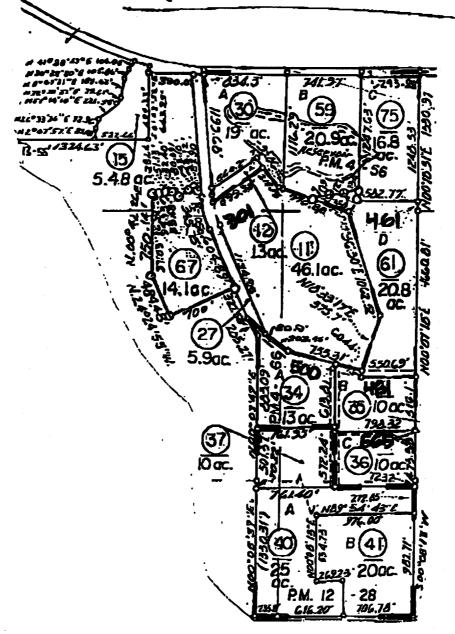


Exhibit C

Castomers outside of the 
eity limits of Lincoln



# AND CITY OF LINCOLN FOR A WATER SUPPLY

This contract made this <u>24t</u> day of <u>February</u>, 1998, by and between the Placer County Water Agency, hereinafter referred to as the "Agency", a public agency created by the California Legislature by the Placer County Water Agency Act, and the City of Lincoln, a municipal corporation, located within the Agency, hereinafter referred to as "Lincoln."

### RECITALS

The Agency and Lincoln entered into a water supply contract on May 3, 1977, which was superseded on July 1, 1991, by the June 20, 1991, water supply contract. This later contract was amended on February 11, 1992. The Agency and Lincoln now desire to enter into a new water supply contract to supersede the June 30, 1991, contract as amended.

**NOW, THEREFORE,** the parties hereto mutually agree as follows:

Article 1 - Term of Contract

This contract, which shall supersede the contract of June 20, 1991, as amended, shall be effective on April 1, 1998, and shall remain in effect through December 31, 2012.

Article 2 - Option for Continued Service.

After the expiration of the term of this contract, Lincoln shall be entitled to renewals of this contract for successive periods not to exceed twenty years at a time. The terms and conditions of each such renewal shall be agreed upon not later than one year prior to the expiration of the then existing contract and shall provide for service of water under the same conditions of service as

provided for in the then existing contract including time, place, amount and rate of delivery as provided for herein.

### Article 3 - Points of Delivery.

- either (1) at Lincoln's Reservoir Number 1, until the 14-inch transmission line (hereinafter the "14-inch line") which was constructed pursuant to the May 3, 1977, contract is transferred to Lincoln as provided for in paragraph (b) of this Article, (2) at the place shown on Exhibit A attached hereto and incorporated herein by reference after the transfer of the 14-inch line, (3) at the terminus of the Penryn-Lincoln pipeline as provided for in Article 4, and/or (4) at such other locations that may be in the future agreed to by the parties. Lincoln may also elect to take delivery of water from the Agency at a point along the Agency's existing 18-inch line in Athens Road, provided that Lincoln pays the Agency's full PERC at the time of request for such delivery and complies with such additional terms and conditions as are appropriate for delivery at that location. Al! locations where water is to be delivered will be hereinafter referred to collectively as "points of delivery." Lincoln shall be solely responsible for operating and maintaining all facilities beyond the points of delivery.
- (b) In order to provide for the transfer of the 14-inch line and the change in the point of delivery from Lincoln's Reservoir Number 1, the Agency and Lincoln will respectively do the following:
  - (1) The Agency will, within 24 months from the date of this contract, at the Agency's expense:
    - a. Design and construct a metering facility capable of metering deliveries to Lincoln, controlling the rate of flow to Lincoln, and also

capable of providing flow data to the Agency's and Lincoln's central telemetry systems. The metering facility shall be located at the location identified on Exhibit A.

- Endeavor to acquire, at no cost, adequate easements for the construction and maintenance of the new pipeline provided in (2) below.
- c. Endeavor to require the relocation of the existing 14-inch line into public right-of-way across the proposed Whitney Oaks development, at no cost to Lincoln or the Agency, at the time such development occurs.
- (2) Lincoln will, within 24 months from the date of this contract, at Lincoln's expense:
- a. Construct a pipeline from the new metering facility to a location downstream of where the 14-inch pipeline connects to the 24-inch pipeline and disconnect the 14-inch pipeline from the Agency's 24-inch pipeline.

Within 60 days after these facilities become operational, the Agency will quitclaim to Lincoln all of the Agency's rights, title and interest in the 14-inch line and the Agency's right-of-way for such pipeline on an as-is basis without warranties as to the condition of the pipeline, and Lincoln shall thereafter be responsible for the operation, maintenance, repair and replacement of such facility. Lincoln shall be the lead agency under the California Environmental Quality Act for any actions that may be required by that law to provide for such conveyance, and the Agency shall cooperate with Lincoln in meeting the requirements of that Act. If for any reason, the conveyance of the 14-inch

line to Lincoln is not completed within 24 months of the date of this contract, Lincoln shall reimburse the Agency for all expenses incurred by the Agency thereafter for the operation and maintenance of the 14-inch line until the conveyance is completed.

### Article 4 - Penryn-Lincoln Pipeline.

(a) Notwithstanding any other provisions of this contract, the Agency shall not be required to deliver water to Lincoln in excess of the physical capacity of the 14-inch line operating under the force of gravity until such time as a pipeline from Penryn to Lincoln has been constructed pursuant to the provisions of this Article. In order to increase the conveyance capacity. of water to Lincoln beyond the capacity of the 14-inch line, Lincoln shall advance to the Agency sufficient funds to provide for the construction of a pipeline from Penryn to Lincoln's point of delivery as shown on Exhibit B attached hereto and incorporated herein by reference. This pipeline is designated in this contract as the "Penryn-Lincoln" pipeline and shall be located in approximately the alignment shown on Exhibit B. The funds to be advanced by Lincoln shall be sufficient to cover the costs for the design, the environmental work, the acquisition of lands, easements and rights-ofway, and the construction of a 30-inch diameter pipeline in accordance with the Agency's standard specifications ("Base Costs"). The Agency may oversize all or any portion of the Penryn-Lincoln pipeline from 30 inches to a larger size by paying the incremental costs necessary to do so; provided, however, in the event Lincoln exercises its right to construct the Penryn-Lincoln pipeline pursuant to Article 4(b) of this contract, the Agency must notify Lincoln of its election to oversize within 90 days after Lincoln notifies the Agency of its election to construct the Penryn-Lincoln pipeline. Such notice shall set forth the extent of the oversizing sufficient to allow engineering of the Penryn-Lincoln pipeline in accordance with the Agency's standard specifications. The Agency shall

thereafter provide progress payments for the construction of the oversizing within 20 days after receipt of billings from Lincoln so as to avoid any delay in the construction of the Penryn-Lincoln pipeline. The Agency's oversizing costs shall be the total construction cost multiplied by a fraction, the numerator of which is the increase in the diameter of the pipe over 30 inches which it elects to construct and the denominator of which is the total diameter of the pipe. For example, if the pipeline is oversized from 30 inches to 42 inches, the Agency's cost would be 12/42 of the construction contract amount.

- (b) In lieu of advancing funds to the Agency for the construction of the Penryn-Lincoln pipeline, Lincoln may elect to construct the line and convey it to the Agency after completion, pursuant to the terms and conditions of a separate Pipeline Extension Agreement (PLX). The terms of the PLX shall be similar to those in PLX's routinely entered into between the Agency and developers which provide for the construction of pipelines and facilities by the developer which are to be provided to the Agency as a condition of water service, provided that the Penryn-Lincoln pipeline PLX shall include provisions which:
  - (i) warrant, for a period of three years following acceptance of the pipeline by the Agency, on behalf of and for the benefit of the Agency and for the benefit of the County of Placer, the pipeline and any roadwork necessary for its construction or maintenance; and
  - (ii) provide for reimbursement of the Agency's costs of administering the PLX, including, without limitation, the costs of engineering, supervision, and inspection, as well as any necessary costs of mediation, arbitration or attorney fees incurred by the Agency in connection with the PLX; and

- (iii) confirm that the credit available to Lincoln, pursuant to Article 5(d) of this contract, shall be equal to the Base Costs specified in Article 4(a), the costs incurred in providing the warranty specified in Article 4(b)(i) of this contract, the costs of administering the construction contract, and the costs identified in Article 4(b)(ii) of this contract ("Total Costs".)
- Lincoln pipeline up to the point of delivery to Lincoln. For portions of the Penryn-Lincoln pipeline which are not oversized by the Agency and are constructed with a diameter of 30 inches, the Agency shall reserve 100 percent of the capacity of the line for delivering water to Lincoln, and an equivalent capacity in the Agency's upstream transmission system from the Foothill Water Treatment Plant to Penryn. For portions of the Penryn-Lincoln pipeline which the Agency elects to oversize, the Agency shall reserve for Lincoln the proportion of the capacity of that line represented by the ratio of the cross-sectional area that a 30-inch line bears to the cross-sectional area of the line which is constructed. (For example, if the pipeline is oversized from 30 inches, with a cross-sectional area of 707 square inches, to 42 inches, with a cross-sectional area of 1385 square inches, then Lincoln shall be entitled to the use of 51 percent of the capacity of the 42-inch line.) If in the future, Lincoln is taking delivery of the full capacity reserved to it, then Lincoln shall also have the right to use any of the remainder of the capacity in that pipeline on the same basis as all other Agency customers.

# Article 5 - <u>Maximum Delivery Entitlements, Plant Expansion and Replacement Charges.</u>

The Agency will supply Lincoln with water each year at the points of delivery, up to the maximum quantities provided for below, subject to the terms and conditions of this contract. As

of the date of this contract, the maximum amount of water which Lincoln may require the Agency to deliver to Lincoln in a single day shall be 3,470,246 gallons ("maximum gpd"), which includes flow allowances for all payments received from Lincoln or from developers within Lincoln as of the date of this contract. For purposes of this contract, a day shall be the twenty-four hour period beginning one second after midnight.

- (a) To be entitled to an increase in the maximum gpd, for each 1150 gallons per day of increased delivery Lincoln shall pay to the Agency, in advance, an amount of money equal to the Agency's Plant Expansion and Replacement Charges ("PERC fees"), as described in (b), for customers served water within the Agency's Zone No. 1 from the Foothill-Sunset Water System through a 5/8 by 3/4 inch metered connection, as such charges may be set from time to time.
- (b) The Agency's current PERC fee is composed of feur components: (1) a treatment plant component, the amount of which is generally intended to cover the costs of delivering raw water to the treatment plant and providing treatment and clearwell storage facilities; (2) a storage component, the amount of which is generally intended to cover the costs of providing distribution system storage facilities; (3) a transmission component, the amount of which is generally intended to cover the costs of providing regional transmission facilities; and (4) a planning component, the amount of which is generally intended to cover the costs of regional planning efforts. Hereafter, the Agency will not be providing distribution system storage and will be providing only a portion of the planning required by Lincoln. Therefore, the PERC fee components applicable to Lincoln from the date of this contract and thereafter shall be the Agency's treatment and transmission components and one-half the planning component. The Agency shall, at least annually, review the PERC fee to determine whether the fee should be adjusted to reflect changes in circumstances.

shall notify Lincoln in writing of the then-remaining water and capacity which the Agency is able to deliver to and from the Foothill-Sunset Water System, and the amount of water and capacity which has been committed to and from the Foothill-Sunset Water System since the date of the immediately preceding report. Beginning in 1999 and each year thereafter, the maximum gpd shall be increased quarterly on April 15, July 15, October 15 and January 15 in proportion to the money paid to the Agency by Lincoln during the preceding three calendar months and shall be determined as follows:

Each quarter the Agency shall divide the total amount of money it received during the preceding quarter from Lincoln by the total of the treatment component, the transmission component (to the extent not credited under Article 5(d)), and one-half the planning component of the Agency's PERC fee for that quarter for customers served water within the Agency's Zone No. 1 from the Foothill-Sunset Water System through a 5/8 by 3/4 inch metered connection. The quotient shall then be multiplied by 1150 gallons and this shall be the increase allowed in the maximum gallons per day. If the increase in any year is more than 7 percent above the maximum gpd for the previous year, and the Agency would have to construct new treatment plant or transmission facilities in order to provide for such increase, the Agency shall have a reasonable amount of time in which to design and construct such facilities before it shall be required to provide for the increase in excess of 7 percent. Consistent with the terms of this contract, funds can be paid by Lincoln at any time to initiate the design and construction of Agency facilities needed to increase the deliveries to Lincoln beyond the 7 percent increase described above.

(d) To the extent that Lincoln has advanced funds to the Agency pursuant to Article 4(a) for the construction of the Penryn-Lincoln pipeline, or has expended funds for construction of the Penryn-Lincoln pipeline pursuant to Article 4(b), Lincoln shall be given a credit for the number of transmission components represented by the amount of funds advanced or funds expended. To determine the number of transmission components credited, the amount of the funds advanced or costs expended shall be divided by the amount of the transmission component of the PERC at the time the funds are advanced or costs expended. This quotient shall be the number of transmission components considered to have been paid for, which credit shall be given as payments are made by Lincoln for additional delivery capacity pursuant to (c) above.

### Article 6 - Storage Facilities.

Lincoln shall henceforth at its own expense provide all of its own storage facilities necessary to regulate pressures and provide for changing delivery rates from the Agency and the hourly changes in demands within its system, under normal operating conditions. Lincoln will provide to the Agency on a routine basis, but not more frequently than daily, the required daily volume of water to be delivered to Lincoln. At the option of the Agency, deliveries to Lincoln may be made at a uniform rate of delivery over a twenty-four hour period, or at fluctuating rates not to exceed plus or minus 10 percent of the daily average delivery rate, unless Lincoln's storage facilities become full and deliveries are temporarily stopped and then resumed at the same uniform or fluctuating rate as before, under normal operating conditions. The Agency shall operate flow control valves which regulate the flow of water from the Agency's system to Lincoln at the points of delivery. In an emergency situation, or planned maintenance outage, Lincoln shall have equal access to the Agency's clearwell storage capacity as other Agency customers if needed; however, Lincoln

also agrees to utilize its alternative groundwater supplies and internal storage capacity to the maximum extent feasible in a given emergency or outage situation. During the non-peak season, generally from September to May, but not during a PG&E outage, Lincoln may exceed the maximum gpd to which it is entitled under the contract for purposes of performing maintenance on its system, provided the Agency determines it has the capability to provide such service and arrangements for such service acceptable to the Agency are made in advance.

### Article 7 - Limitation on Agency Service.

Except for those properties that abut the existing Agency pipeline in Athens Road, the Agency, to the extent permitted by law, will not sell treated water and/or provide municipal water service within two miles of the Lincoln Airport or to areas within Lincoln's sphere of influence as of the date of this contract; provided, that Lincoln offers to furnish such service to those areas upon the same terms and conditions that it furnishes service to areas outside its city limits.

### Article 8 - City Well System and Water Rights.

Lincoln may maintain and utilize its well system and may exercise such surface rights it may have for service within its service area. Water from these sources is intended as a backup water supply and Agency furnished water is intended as Lincoln's base water supply.

### Article 9 - Measurement.

All water furnished pursuant to this contract shall be measured by the Agency at the points of delivery. Such measurements shall be with equipment chosen by the Agency and approved by Lincoln. All measuring equipment shall be installed and maintained by the Agency and the Agency shall pay for all installation and maintenance. The Agency shall have the primary obligation to measure the quantity of water delivered to Lincoln. Lincoln may request, at any time,

investigation of the measurements being made as well as the charges associated with those measurements. Errors in measurement and charges discovered by the investigation will be corrected by the Agency. Lincoln may, at its own cost, at any time, inspect the measuring equipment and the records of such measurements for the purpose of determining the accuracy of the equipment and measurements.

### Article 10 - Rates of Payment for Water.

(a) For all water furnished to Lincoln under this contract through the year 2001, Lincoln shall pay the Agency the applicable fixed rates and charges under the Agency's Zone No. 1 Schedule No. 1 - I & R Metered Industrial and Resale Service - Treated Water. In addition thereto, for these years Lincoln shall also pay the following percentage of the quantity rate for monthly quantities over 1,000,000 cubic feet charged to nonmunicipal-resale customers under that schedule for such service:

1998	77 percent
1999	78 percent
2000	79 percent
2001	80 percent

This reduction in the quantity rate charged to nonmunicipal-resale customers is to reflect the fact that Lincoln provides its own water storage and distribution system and provides for its own meter reading and collection.

(b) Prior to the end of 2001, the Agency shall provide for a thorough review by Agency staff and/or consultants of the equity of the rates being charged Lincoln and the Agency's costs of providing such service. The Agency may alter its rates and charges at any time as it deems

necessary; provided, however, it shall not revise the percentages noted in (a) above prior to completing the review provided for herein. The Agency shall give Lincoln 45 days' written notice of its intention to consider any changes in rates and charges and shall hold a public hearing at which Lincoln and any members of the public can present evidence in support of or in opposition to any such proposed changes. No increase in rates to be charged to Lincoln shall become effective until 90 days after the Agency has notified Lincoln in writing of the rate change.

### Article 11 - Payment in Lieu of Taxes.

Lincoln agrees to pay the Agency \$30,000 within 30 days after the date of this contract as full and complete payment in lieu of taxes on property not within the Agency's Zone No. 1 that has been or will be furnished water delivered to Lincoln by the Agency.

### Article 12 - Time and Method of Payments.

On or before the tenth day of each month, the Agency shall send Lincoln a statement of charges due for all water actually delivered to Lincoln during the preceding month. Lincoln shall pay all statements within twenty (20) days after they are received.

### Article 13 - Water Shortages.

At times there may occur a shortage in the quantity of water available for delivery to Lincoln pursuant to this contract. In the event of any shortage (due to natural causes, casualties, regulatory requirements or any other causes) which causes the total quantity of water available to the Agency for distribution to Lincoln and to the Agency's other customers to be less than the total of all quantities required by Lincoln and the other customers, the Agency reserves the right to apportion the available water supply among Lincoln and others entitled to receive water from the Agency. In such events, no liability shall accrue against the Agency or any of its officers, agents or

employees for any damage, direct or indirect, arising from such shortage or shortages. The Agency shall give Lincoln written notice as far in advance as possible of any such reduction in water service, which notice shall state the basis for the reduction and the anticipated duration. Also, if the Agency's supply of water for its Zone No. 1 is reduced by events outside the control of the Agency, or is being fully utilized by the Agency's then existing customers, and as a result the Agency is unable to increase its rate of delivery to Lincoln, then notwithstanding any other provision of this contract the Agency shall not be required to increase its rate of delivery to Lincoln.

### Article 14 - Operation and Maintenance.

The Agency may temporarily discontinue or reduce the amount of water to be furnished to Lincoln as provided for herein for the purpose of maintaining, repairing, replacing, investigating or inspecting any of the facilities necessary for furnishing water to Lincoln. Insofar as it is feasible, the Agency will give Lincoln due notice in advance of any such temporary discontinuance or reduction, except in cases of emergency, in which case no advance notice need be given. The Agency shall schedule its routine maintenance of facilities so that to the extent feasible such discontinuances or reduction in delivery will result in minimum impact to Lincoln's customers.

### Article 15 - Water Quality.

All water delivered by the Agency pursuant to this contract shall meet all applicable Federal, State of California and Placer County water quality requirements for water for domestic use. If public notification is required to be given to Lincoln's customers because the quality of the water fails to meet standards, Lincoln shall be responsible for sending such notices, and the Agency shall reimburse Lincoln for its reasonable costs in doing so. The Agency shall provide Lincoln with

copies of any reports received by the Agency from health departments concerning the quality of the water being furnished to Lincoln.

### Article 16 - Responsibilities for Delivery and Distribution of Water.

Neither the Agency nor its officers, agents or employees shall be liable for the control, carriage, handling, use, disposal, or distribution of water furnished to Lincoln pursuant to this contract after such water has passed the points of delivery, nor for the claims of damages of any nature whatsoever, including but not limited to, property damage, personal injury, or death, arising out of or connected with the control, carriage, handling, use, disposal or distribution of such water beyond the points of delivery, excepting any claim or action for damages based upon the quality of water prior to its reaching the points of delivery; and Lincoln shall indemnify, defend and hold harmless the Agency and its officers, agents and employees from any such damages or claims of damages, excepting damages or claims of damages based upon the quality of water prior to its reaching the points of delivery.

### Article 17 - Obligations of Lincoln to Make Payments.

The obligations of Lincoln arising out of or pursuant or incidental to this contract shall constitute general obligations of Lincoln, and Lincoln shall use all the powers and resources available to it under the law to collect the funds necessary for and to pay its obligations to the Agency under this contract. Lincoln as a whole is obligated to pay to the Agency the payments becoming due under this contract, notwithstanding any individual default by its water users, constituents or others in the payment to Lincoln of assessments, taxes, tolls, or other charges levied by Lincoln.

### Article 18 - Interest on Overdue Payments.

Interest shall accrue at the legal rate of interest charged on judgments issued in California courts on any unpaid charges to be paid by Lincoln to the Agency pursuant to this contract from their due date until paid, and Lincoln hereby agrees to pay such interest.

### Article 19 - Default.

In the event of any default by Lincoln for a period of more than sixty (60) days in the payment of any money required to be paid to the Agency hereunder, the Agency in its discretion may suspend delivery of water during the period when Lincoln is delinquent in its payments or obligations due to the Agency under the terms of this contract. Action taken pursuant to this Article shall not deprive the Agency of or limit any remedy provided by this contract or by law for the recovery of money due or which may become due under this contract.

### Article 20. - Remedies Not Exclusive.

The use of either party of any remedy for the enforcement of this contract is not exclusive and shall not deprive the party using such remedy of, or limit the application of, any other remedy provided by law.

### Article 21. - Assignment.

The provisions of this contract shall apply to and bind the successors and assigns of the respective parties, but no assignment or transfer of this contract, or any part hereof or interest herein, shall be valid without the consent of the non-assigning party.

### Article 22. - Area Served by Lincoln.

Without the prior written consent of the Agency, water delivered to Lincoln pursuant to this contract shall not be sold or otherwise disposed of by Lincoln for use outside Lincoln's city

limits as they may exist from time to time, except to those customers outside the city limits located in the area shown on Exhibit C attached hereto and incorporated herein by reference that are receiving service from Lincoln as of the date of this contract. The consent of the Agency shall not be unreasonably withheld. Refusal of the Agency to grant consent shall be based upon the lack of water or capacity in Agency facilities or the intention of the Agency to provide service to the area outside Lincoln's sphere of influence. Lincoln shall require annexation to the Agency's Zone No. 1 as a condition to providing water service to any new customers outside of Lincoln's city limits that are connected to Lincoln's water system after the date of this contract.

### Article 23. - Opinions and Determinations.

Where the terms of this contract provide for action to be based upon opinion, judgment, approval, review or determination of either party, such terms are not intended to be and shall never be construed as permitting such opinion, judgment, approval, review or determination to be arbitrary, capricious or unreasonable.

### Article 24. - Notices.

All notices, including but not limited to rate or PERC fee increases, that are required either expressly or by implication to be given by any party to the other under this contract shall be signed for the Agency and for Lincoln by such officers as they may, from time to time, authorize in writing to so act. All such notices shall be deemed to have been given and delivered personally if enclosed in a properly addressed envelope and deposited in a United States Post Office for delivery by registered or certified mail. Unless and until formally notified otherwise, all notices shall be addressed to the parties at their addresses as shown on the signature page of this contract.

### Article 25. - Inspection of Books and Records.

The proper officers or agents of Lincoln shall have full and free access at all reasonable times to the account books and official records of the Agency insofar as the same pertain to the matters and things provided for in this contract, with the right at any time during office hours to make copies thereof at Lincoln's expense, and the proper representatives of the Agency shall have similar rights in respect to the account books and records of Lincoln.

### Article 26. - Amendments.

This contract may be amended at any time by mutual written agreement of the parties, except insofar as any proposed amendments are in any way contrary to applicable law.

### Article 27. - Waiver; Remedies Cumulative.

Failure by a party to insist upon the strict performance of any of the provisions of this contract by the other party, irrespective of the length of time for which such failure continues, shall not constitute a waiver of such party's right to demand strict compliance by such other party in the future. No waiver by a party of a default or breach of the other party shall be effective or binding upon such party unless made in writing by such party, and no such waiver shall be implied from any omission by a party to take any action with respect to such default or breach. No express written waiver of a specified default or breach shall affect any other default or breach and/or period of time specified. All of the remedies permitted or available to a party under this contract, or at law or in equity, shall be cumulative and alternative, and invocation of any such right or remedy shall not constitute a waiver or election of remedies with respect to any other available right or remedy.

### Article 28. - Construction of Language of Agreement.

The provisions of this contract shall be construed as a whole according to its common meaning and purpose of providing a public benefit and not strictly for or against any party. It shall be construed consistent with the provisions hereof, in order to achieve the objectives and purposes of the parties. Wherever required by the context, the singular shall include the plural and vice versa, and the masculine gender shall include the feminine or neutral genders or vice versa.

### Article 29. - Mitigation of Damages.

In all situations arising out of this contract, the parties shall attempt to avoid and minimize the damages resulting from the conduct of the other party.

### Article 30. - Governing Law.

This contract, and the rights and obligations of the parties, shall be governed and interpreted in accordance with the laws of the State of California.

### Article 31. - Captions.

The captions or headings in this contract are for convenience only and in no other way define, limit or describe the scope or intent of any provision or section of the contract.

### Article 32. - Partial Invalidity.

If any provision in this contract is held by a court of competent jurisdiction to be invalid, void or unenforceable, the remaining provisions will nevertheless continue in full force without being impaired or invalidated in any way.

### Article 33. - Relationship of the Parties.

The relationship of the parties to this contract shall be that of independent contractors. Each party shall be solely responsible for any workers compensation, withholding taxes,

unemployment insurance and any other employer obligations associated with the described work or obligations assigned to them under this contract.

### Article 34. - Water Conservation.

The Agency is required by federal and state laws and regulations to implement various water conservation measures and require its customers, whether they be retail, wholesale, or resale customers, to abide by these measures in order to prevent the waste of water. Lincoln shall, within its service area, implement the water conservation measures adopted by the Agency from time to time for the Agency's Zone No. 1 Water System and shall require its customers to comply with those measures to the same extent that other customers within the Agency's Zone No. 1 are required to do so.

### Article 35. - Year.

The term "year" as used in this contract shall mean the calendar year beginning on each January 1.

IN WITNESS WHEREOF, the parties hereto have executed this Contract as of the

date first above written.

ATTEST:

PLACER COUNTY WATER AGENCY

Clerk, Board of Directors Placer County Water Agency P.O. Box 6570 Auburn, California 95604

Tuoun, cuitomia soco.

APPROVED AS TO FORM:

Placer County Water Agency Counsel

ATTEST:

Clerk
City of Lincoln
511 5th Street

Lincoln, California 95648

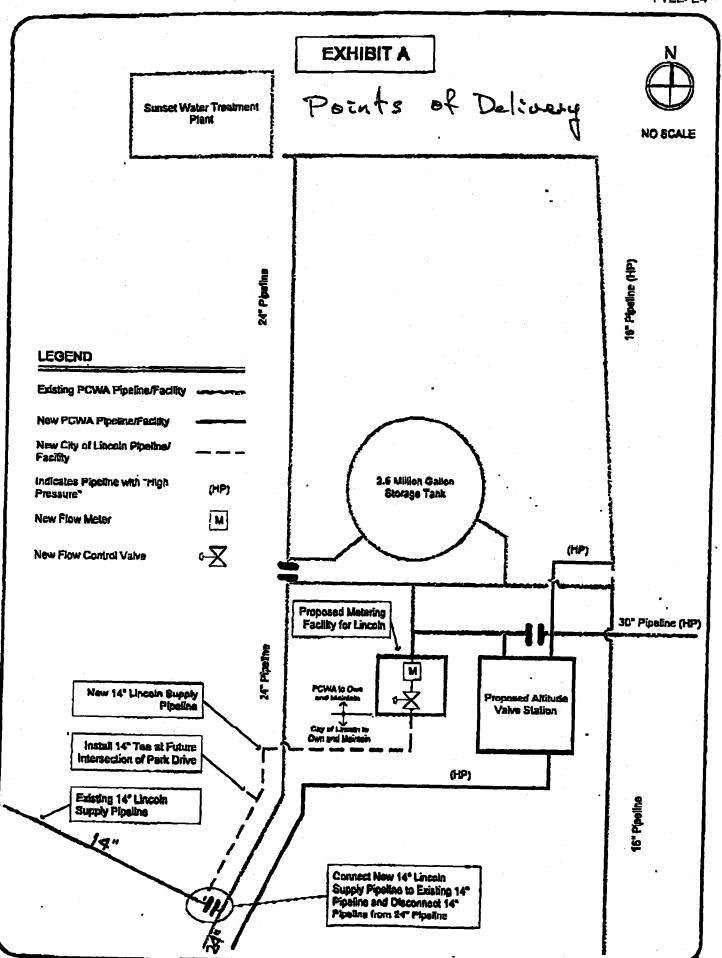
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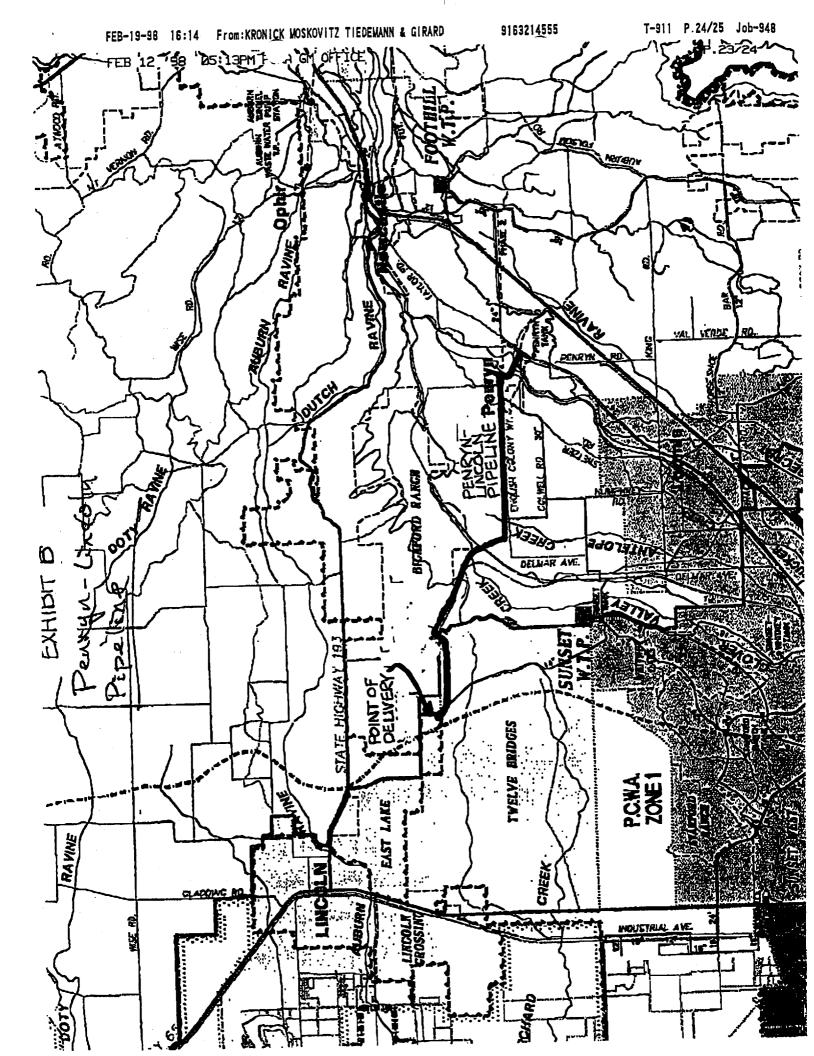
Lincoln City Attorney

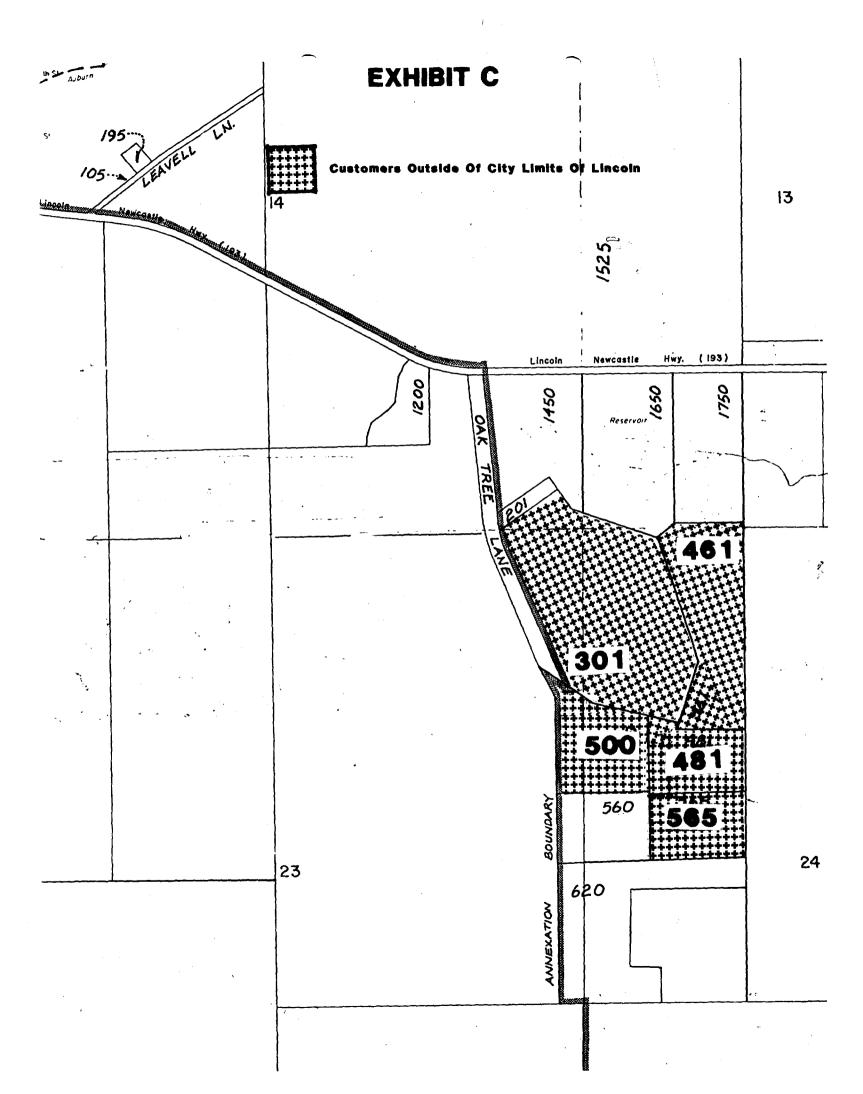
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CITY OF LINCOLN

P.22/24







# SUPPLEMENT TO CONTRACT BETWEEN PLACER COUNTY WATER AGENCY AND CITY OF LINCOLN FOR A WATER SUPPLY

This Supplement to the February 24, 1998, water supply contract is made this <u>late</u> and of <u>July</u>, 1999, by and between the Placer County Water Agency, (the "Agency"), and the City of Lincoln ("Lincoln").

### **RECITALS**

On February 24, 1998, the Agency and Lincoln entered into a water supply contract which is hereinafter referred to as "the Contract". The Contract provides, among other things, for the construction of a pipeline from Penryn to Lincoln which was therein referred to as the "Penryn-Lincoln Pipeline", but is hereinafter referred to as the "Penryn-Lincoln-Sunset Pipeline"; however, the Contract did not spell out the details for the design, construction and financing for that pipeline. The parties now wish to supplement the Contract by setting forth those details.

NOW, THEREFORE, THE PARTIES hereto mutually agree as follows:

1. Article 3 of the Contract is revised to read:

### Article 3 – Points of Delivery and Transfer of 14 Inch Line

(a) All water furnished pursuant to the Contract shall be delivered to Lincoln at Lincoln's Reservoir No. 1 until completion of Phases 1a and 1b of the Penryn-Lincoln-Sunset Pipeline and thereafter at "Point A" shown on Exhibit B. Additional points of delivery may be constructed at either: (1) the terminus of Phase 3 upon completion of Phase 3 of the Penryn-Lincoln-Sunset Pipeline; (2) a new point of delivery to be mutually selected by the parties near the Agency's proposed Sunset tanks for delivery of up to 5-mgd and/or (3) at such other locations that may be agreed to in the

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future by the parties. Lincoln may also elect to take delivery of water from the Agency at a point along the Agency's existing 18-inch line in Athens Road, provided that Lincoln pays the Agency's full PERC at the time of request for such delivery and complies with such additional terms and conditions as are appropriate at that location. All locations where water is to be delivered shall be hereinafter referred to collectively as "points of delivery". Lincoln shall be solely responsible for all costs of operating and maintaining all of the facilities beyond the points of delivery, except that the cost for the construction of the delivery facilities at Point A shall be deemed to be a part of Phase 1 of the Penryn-Lincoln-Sunset Pipeline and paid for as provided for in Article 4.

(b) Upon completion of Phases 1a and 1b of the Penryn-Lincoln-Sunset Pipeline and relocation of the point of delivery to Point A, the Agency will immediately cut and cap the existing 14-inch transmission line which was constructed pursuant to the May 3, 1977 contract where it first enters the City limits of Lincoln, near the Sunset Water Treatment Plant (WTP). Within 60 days after the new delivery point at Point A becomes operational, the Agency will quitclaim to Lincoln all of the Agency's rights, title and interest in the 14-inch line which lie within the boundary of the City of Lincoln and the Agency's right-of-way for such pipeline on an as-is basis without warranties as to the condition of the pipeline, and Lincoln shall thereafter be responsible for the operation, maintenance repair and replacement of such facility.

### 2. Article 4 of the Contract is revised to read:

### Article 4 – Penryn-Lincoln-Sunset Pipeline.

Notwithstanding any other provision of this contract, the Agency shall not be required to deliver water to Lincoln in excess of the physical capacity of the 14-inch

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line operating under the force of gravity until such time as Phases 1a and 1b of the Penryn-Lincoln-Sunset Pipeline have been constructed and accepted by the Agency as provided for herein. Thereafter the Agency shall not be required to deliver water to Lincoln in excess of 6,000,000 gallons per day (6-mgd) prior to completion of Phase 2 unless:

- Lincoln has deposited with the Agency the full \$6,800,000 for the construction of Phase 2 as required by Article 4B below;
- The Agency has transmission capacity available in its system to meet Lincoln's request for deliveries in excess of 6 mgd, and Lincoln pays all the costs of obtaining such capacity;
- Lincoln has not in any way caused a delay in the construction of Phase 2; and
- Lincoln has paid all of the Agency's applicable charges, including all applicable Plant Expansion and Replacement Charges (PERC), required by the Contract.

The approximate alignment of the Penryn-Lincoln-Sunset Pipeline is shown on Exhibit B attached hereto and incorporated herein by reference, which exhibit replaces the former Exhibit B in the Contract. The Penryn-Lincoln-Sunset Pipeline shall be constructed in three phases, with all design and construction to be in accordance with the Agency's standards. The description, the financing and the responsibility for the design and construction of each phase is as follows:

A. Phase 1 shall consist of a 30-inch diameter pipeline and ancillary facilities which shall run from the Agency's existing 30-inch pipeline near the Sunset WTP north generally along the eastern boundary of the City of Lincoln, to point

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"A", as shown in Exhibit "B", which is the common point to phases 1, 2 and 3. Phase 1 shall be designed and constructed in two sections as described below:

Phase 1a shall be designed and constructed by the Agency and shall be that section of Phase 1 described as beginning at the existing 30-inch pipeline near the Sunset WTP northerly past the Sunset WTP and proposed Agency 10 million gallons tank to the north property line of the Agency's 20 acre tank site.

Phase 1a ancillary facilities Agency shall include, but not be limited to:

- The installation of piping and valving stubs for the construction of an above ground combination altitude valve station and pressure reducing station, with building, necessary to tie into the Agency's proposed storage tanks to be located adjacent to the Sunset WTP and existing and/or proposed connecting piping;
- Relocation of two (2) existing raw water pipelines and two (2) electrical conduits around the Agency's proposed storage tanks;

Phase 1b shall be designed and constructed by Lincoln and shall be that section of Phase 1 described as beginning at the north property line of the Agency's 20 acre tank site running northerly generally along the eastern boundary of the City of Lincoln to point "A", as shown in Exhibit B.

Phase 1b ancillary facilities Lincoln shall include but not be limited to:

 A flow regulated delivery/metering facility, including telemetry and SCADA controls for automatic operation, at Point A with 20-mgd

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- capacity; The Contract provides for the Agency's regulation of flow deliveries in order to eliminate peaking off the Agency's storage tanks.
- A non-flow regulated delivery/metering facility, including telemetry
  for monitoring use, at Point A, to serve a limited number of high
  elevation lots within Lincoln that will use Agency storage facilities for
  peaking.
- All required environmental mitigation.

Pressure regulation facilities required by Lincoln beyond the delivery/metering point(s) shall not be included in this Phase 1 project.

Lincoln shall design and construct Phase 1b pursuant to the terms and conditions of a separate pipeline extension agreement (PLX) with the Agency. The terms of the PLX shall be as set forth below in paragraph D of this Article 4. Construction of Phase 1b should be completed by June 1, 2000.

Lincoln shall fund the design, environmental compliance work and construction of Phase 1b, and Lincoln shall receive credits for this funding as provided for in Article 5(d) below. Lincoln shall not be required to provide funding for Phase 1a and shall not receive credits for Phase 1a.

B. Phase 2 shall consist of a 42-inch diameter pipeline and ancillary facilities. The eastern end of the Phase 2 pipeline shall tie into the Agency's existing 48-inch pipeline near the Agency's existing Penryn tank. The western end of the Phase 2 pipeline shall be at Point A, where it shall tie into the northern end of the Phase 1 pipeline and the delivery and metering facilities located at that point. The Phase 2 pipeline will generally follow the route shown on Exhibit B. Phase 2 shall also include

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the completion of the pressure reducing station adjacent to the Agency's proposed storage tanks and the Sunset WTP. Phase 2 shall be designed and constructed by the Agency. Construction of Phase 2 should be completed by June 1, 2002.

Lincoln shall provide funding for 51% of the design and environmental documentation costs and 30/42 of the construction costs, including environmental mitigation, of Phase 2, but not to exceed a total of \$6,800,000, less the costs expended by Lincoln for Phase 1b. Lincoln shall fund its share of these costs by progress payments to the Agency. The Agency shall submit invoices to Lincoln each month setting forth the estimated amount of Lincoln's share of the Phase 2 costs that will be incurred by the Agency in the following month. Lincoln shall pay these invoices within 25 days of their receipt. Any over or under payments made by Lincoln shall be adjusted in the next succeeding invoice. Lincoln shall receive credits for the funds it has paid for Phase 2 as provided for in Article 5(d) below.

C. Phase 3. Phase 3 shall consist of a 30-inch diameter pipeline (or smaller, at Lincoln's option) and ancillary facilities. The southern end of the Phase 3 pipeline shall be at Point A. The northern end of this pipeline shall be near Lincoln's present raw water pond. This pipeline alignment shall generally follow Lincoln's eastern boundary as shown on Exhibit B. Ancillary facilities for Phase 3 shall include, but not be limited to, a flow regulated delivery/metering facility with automatic controls and telemetry at the northern terminus of this pipeline. Phase 3 shall be constructed by Lincoln pursuant to the terms and conditions of a separate PLX, the terms of which shall be as set forth below in paragraph D of this Article 4. Construction of Phase 3 should be completed by June 1, 2006. Lincoln shall fund the full cost for the design and

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construction of Phase 3, and upon its completion and acceptance by the Agency, Lincoln shall receive credits for this funding of Phase 3 as provided for in Article 5(d) below.

- D. Terms of PLXs. The terms of the PLXs required for Phases 1b and 3 shall be similar to those in PLXs routinely entered into between the Agency and developers which provide for the acquisition of lands easements and rights of way and the construction of pipelines and facilities by the developer which are to be provided to the Agency as a condition of water service, provided that these PLXs shall also include provisions which:
  - (i) warrant, for a period of three years following acceptance of the facilities provided for in the PLX by the Agency, on behalf of and for the benefit of the Agency and for the benefit of the County of Placer, the pipeline and any roadwork necessary for its construction or maintenance; and
  - (ii) provide for reimbursement of the Agency's costs of administering the PLX, including, without limitation, the cost of engineering, supervision, and inspection, as well as any necessary costs of mediation, arbitration or attorneys' fees incurred by the Agency in connection with the PLX, and
  - (iii) confirm that the credit available to Lincoln, pursuant to Article 5(d) below shall be equal to the costs incurred by Lincoln for design and construction, the costs

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incurred in providing the warranty specified in paragraph D(i) above, the cost of administering the construction contracts, and the costs identified in paragraph D(ii) above.

- E. Ownership of Penryn-Lincoln-Sunset Pipeline. When completed and accepted by the Agency, the Agency will own, operate and maintain the Penryn-Lincoln-Sunset Pipeline up to the points of delivery to Lincoln. The Agency shall reserve for the delivery of water to Lincoln 100% of the capacity of Phase 3, 51% of the capacity of Phase 2, and none of the capacity of Phase 1 of the Penryn-Lincoln-Sunset Pipeline and capacity in the Agency's upstream transmission system from the Foothill Water Treatment Plant to Penryn equivalent to that in a 30-inch pipeline. If in the future, Lincoln is taking delivery of the full capacities reserved to it, then Lincoln shall also have the right to use any of the remainder of the capacity in any phase of the Penryn-Lincoln-Sunset Pipeline on the same basis as all other Agency customers.
- F. Installation of Meter to Determine Flow Into Phase 2. Lincoln shall have the right to have a meter(s) installed on the Phase 2 pipeline for the purpose of measuring the flow into that pipeline. If Lincoln requests the Agency to install such a meter(s), Lincoln shall deposit with the Agency funds estimated by the Agency to be sufficient to cover all of the Agency's cost for the meter(s), any necessary appurtenant facilities, and the installation of the meter. Any of the funds deposited by Lincoln not required for this work shall be refunded to Lincoln, and Lincoln shall pay the Agency for any costs for this work that exceeds the amount deposited within 30 days after a receipt of a statement from the Agency for such excess costs. Lincoln shall not be entitled to any reimbursement or credits for any of these costs, and the meter(s) and all appurtenant

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facilities shall be the property of the Agency. Lincoln shall be furnished the data showing the flows through such meter.

- 3. Article 5(d) of the Contract relating to credits for funds advanced or expended is revised to read:
- To the extent Lincoln has advanced funds to the Agency for (d) the construction of Phase 2, or has expended funds for Phases 1b and 3 of the Penryn-Lincoln-Sunset Pipeline pursuant to Article 4, Lincoln shall be given a credit for the number of transmission components represented by the amount of funds advanced or expended, less any portion of those funds which Lincoln elects to have credited as PERC fee payments pursuant to Article 5(c) of the Contract for the purpose of increasing Lincoln's maximum delivery entitlement. To determine the number of transmission components credited, the amount of the funds advanced or costs expended, not credited towards the payment of PERC fees pursuant to Article 5(c) of the Contract, shall be divided by the amount of the transmission component of the PERC at the time the funds are advanced or costs expended. This quotient shall be the number of transmission components considered to have been paid, which credit shall be given as payments are made by Lincoln for additional delivery capacity pursuant to Article 5(c) of the Contract. Lincoln shall not be entitled to receive an increase in its maximum delivery entitlement pursuant to Article 5(c) of the Contract, and an additional credit for transmission components under this Article 5(d) for the same dollars advanced or expended. In other words, Lincoln must elect whether the funds advanced or the funds expended for construction for phases of the Penryn-Lincoln-Sunset pipeline are to result in increases in

06/18/99

its maximum delivery entitlement or credits towards the transmission component for future PERC payments made pursuant to Article 5(c) of the Contract.

4. The Contract shall be supplemented by adding thereto a new Article 35 to read:

## Article 35. Service to High Elevation Lots.

It is anticipated that there will be approximately 300 dwelling lots within Lincoln's service area at elevations higher than Lincoln's existing proposed storage tanks. The Agency hereby agrees that Lincoln may elect to take unregulated delivery from the Agency for these lots, provided that Lincoln first pays to the Agency the Agency's full PERC, as it exists at the time of such payment, for each of these lots. Upon such payment, Lincoln's maximum delivery entitlement as provided for in Article 5 of the Contract shall be increased as follows: The Agency shall divide the total amount of money received for these PERCs by the Agency's full PERC fee for customers served water within the Agency's Zone No. 1 from the Foothill-Sunset Water System through a 5/8 x 3/4 inch meter connection. The quotient shall then be multiplied by 1,150 gallons and this shall be the increased allowed in the maximum gallons per day.

- 5. Except as supplemented and revised herein, the provisions of the Contract remain in full force and effect.
- 6. <u>Compliance with Environmental Laws.</u> The effective date and implementation of this Supplement is subject to compliance with the California Environmental Quality Act ("CEQA"). The Agency and Lincoln acknowledge that this Supplement does not and cannot commit them to a definite course of action before compliance with CEQA, to the extent required. Lincoln and the Agency presently are in

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the process of preparing the required environmental documentation for the phases of the proposed Penryn-Lincoln-Sunset Pipeline. Each party shall assist and cooperate with the other in the preparation of those documents.

IN WITNESS WHEREOF, the parties hereto have executed this Supplement to the Contract as of the date first above written.

ATTEST:

PLACER COUNTY WATER AGENCY

Chairman of the Board

Clerk, Board of Directors Placer County Water Agency P.O. Box 6570 Auburn, California 95604

APPROVED AS TO FORM:

Placer County Water Agency Counsel

ATTEST:

CITY OF LINCOLN

Klerk

City of Lincoln

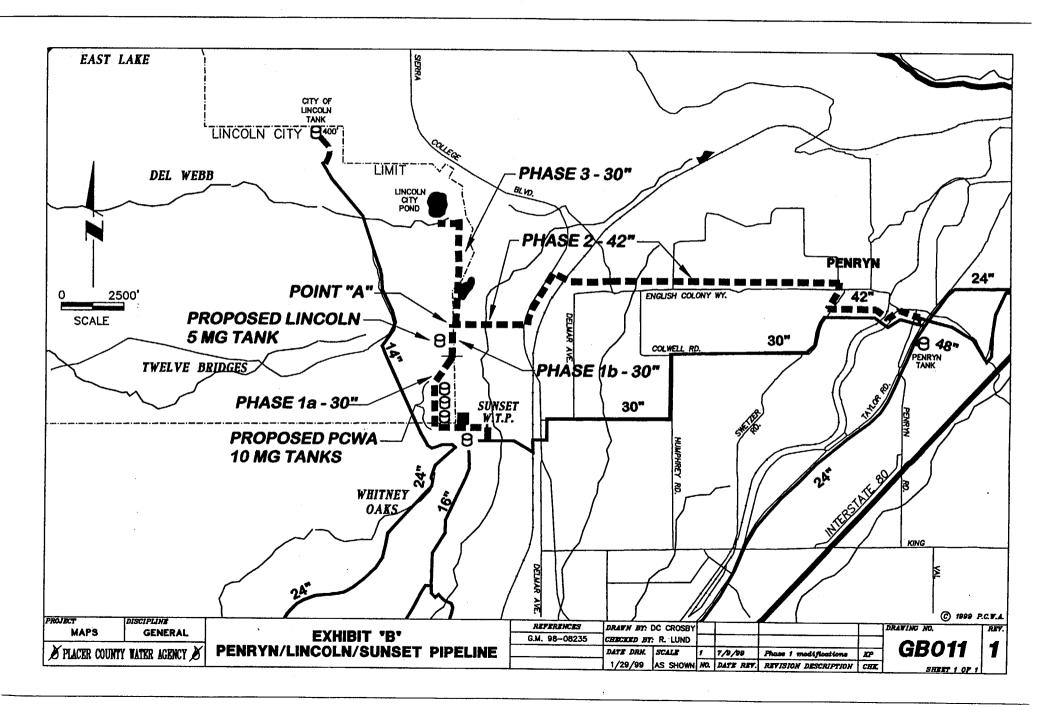
511 5th Street 1390 Fixer 57.

Lincoln, California 95648

APPROVED AS TO FORM:

Lincoln City Attorney

550164.1



# SUPPLEMENT TO WATER SUPPLY CONTRACT BETWEEN PLACER COUNTY WATER AGENCY AND THE CITY OF LINCOLN

This Supplement, which shall be effective November 7, 2002, is by and between the Placer County Water Agency ("Agency") and the City of Lincoln ("Lincoln").

## **RECITALS**

WHEREAS, pursuant to the provisions of Lincoln's water supply contract with the Agency dated February 24, 1998, as amended on July 13, 1999, (the "Contract") the maximum delivery of water which Lincoln was entitled to receive as of November 6, 2002, was 10,165,406 million gallons per day (mgd); and

WHEREAS, on November 7, 2002, Lincoln requested the Agency increase Lincoln's maximum delivery to 11,671,906 mgd; and

WHEREAS, the Agency's ability to increase deliveries in its Zone No. 1 is severely limited until a permanent 100 cubic foot per second capacity American River Pump Station (the "Pump Station") is completed:

## NOW THEREFORE, THE PARTIES AGREE AS FOLLOWS:

1. The Agency shall increase Lincoln's maximum delivery to 11,671,906 mgd if Lincoln pays the Agency \$6,565,065 on or before December 6, 2002, under the following terms and conditions. The parties concur with the attached Recap sheet giving Lincoln 9,171.48 full PERC credits and 978 restricted WCC credits until completion of the Pump Station or earlier as provided for herein in order to increase the maximum delivery to the 11,671,906-mgd. However, in order to enable the Agency to equitably apportion the remaining capacity in its Zone 1 water system until the completion of the

Pump Station, the maximum delivery to Lincoln shall be limited to 10,547,206 mgd until such completion; provided that if at any time after January 1, 2004, Lincoln believes it may need to have its maximum deliveries increased above this amount before the expected completion of the Pump Station, Lincoln and the Agency shall reevaluate the limit on the maximum deliveries to Lincoln. In determining whether to increase Lincoln's maximum above the 10,547,206 mgd the parties shall consider:

- A. Lincoln's current usage and its projected demand during the next summer peak period and the construction progress of the ongoing subdivisions in Lincoln.
- B. The Agency's uncommitted water supply and the projected demand of its other Zone No. 1 customers during the next summer peak period.
- C. The status of the Pump Station.
- 2. Upon completion of the Pump Station, or sooner if the parties agree, the maximum delivery to Lincoln shall be increased to the 11,671,906 mgd, provided Lincoln has paid the \$6,565,065 on or before December 6, 2002.
- 3. Until the completion of the Pump Station, the Agency shall limit the amount of connections any one party can purchase to the amount that it can use within the estimated time period before the completion of the Pump Station.
- 4. The Agency and Lincoln agree it is in their mutual benefit to try to increase the water supply to Lincoln from the Nevada Irrigation District and will work together to develop such supply.
- 5. The Agency and Lincoln agree it is in their mutual benefit to increase the available water supply in the Agency's service area through the aggressive use of integrated resources, including reclaimed water and will work together to develop this

supply. The Agency will assist the City in it's endeavor to acquire additional grant funds necessary to construct City reclamation facilities, as defined by the City's Reclamation Study recently completed by ECO:LOGIC.

6. The Agency has engaged the services of Montgomery Watson Harza to develop a water system infrastructure master plan consistent with the Agency's Water Forum Agreement to seek to develop its additional water supplies from the Sacramento River. The City of Lincoln will assist PCWA in the planning process.

The Agency agrees to allow Lincoln to design and construct the Phase 3 7. thirty inch diameter pipeline by June 1, 2006, in accordance with Article 4(c) of the The Agency agrees to credit Lincoln the full amount of the WCC, and not just Contract. the transmission component, for the construction costs of the Phase 3 pipeline, if requested by the City.

8. Any additional payments from Lincoln for increased delivery capacity, or credits given for the construction of the Phase 3 pipeline, shall be restricted in the same way and under the same conditions as the 978 credits identified in Article 1 of this agreement.

PLACER COUNTY WATER AGENCY

CITY OF LINCOLN

Attest:

Attest:

Clerk, Board of Directors

Clerk, City of Lincoln

721039.1

# RECAP OF CITY OF LINCOLN PERC PAYMENTS AND CREDITS PENRYN/LINCOLN PIPELINE CONTRIBUTIONS AND CASH PAYMENTS

ITEM	AMOUNT PAID	COMMENT	MAX CONTRACT DELIVERY RATE	FULL PERC CREDITED	WTP/Planning CREDIT	TRANSMISSION CREDITS	Cumulative Trans  Credits
A		1/1/2001	4,492,596	3,906.61			
B-1	\$4,800,000	Contribution to Agency const			<b>1-1-1</b> -7-17-17	(3,321.80)	(3,321.80)
B-2	\$1,580,983	Lincoln const costs for Phase 1b				(1,094.11)	(4,415.91)
B-3	\$243,250	Interest on Agency held funds		48.54		0.00	(4,415.91)
B-4	\$544,370	Const costs billed to Lincoln		25.01		(289.99)	(4,705.89)
B-5	\$2,139,900	10/12/2001			600.00	600.00	(4,105.89)
B-6	\$5,321,218	3/30/2002			1,492.00	1,492.00	(2,613.89)
B-7	\$10,091,397	10/29/2002		153.44	2,613.89	2,613.89	0.00
Subtotal Item B	\$24,721,118		5,672,810	4,932.88		···	
	Total of Items A & B only	10/29/2002	10,165,406	8,839.48			
Ċ	\$6,565,065	11/7/2002 Full Restricted		332.00 978.00			
otal Of Items A, B, 8	3 C \$31,286,183	Full Restricted	10,547,206 1,124,700	9,171.48 978.00		•	
The City PERC rate per EDU in effect during this period was:  Transmission Component  Treatment & 1/2 Planning Component  Total Lincoln PERC  Increase in Maximum Contract Delivery rate in gpd per EDU  Negative ( ) credit amounts indicate the amount owed by the Agency ( Positive amounts indicate the amount used by Lincoln to increase its i				•	<ul> <li>B-1,2,3,4 - Transmission credits related to construction of Penryn-Lincoln Pipeline.</li> <li>B-5,6 - City payments to PCWA to go with transmission credits to increase City maximum delivery limit.</li> <li>B-7 - City Payment to PCWA as Full PERC credit to increase City maximum delivery limit.</li> <li>C - City payment to PCWA as Full PERC credit to increase City maximum delivery limit with restricted availability of 1.1 mgd until American River Pump Station is on-line.</li> </ul>		

# MEMORANDUM OF UNDERSTANDING BETWEEN CITY OF LINCOLN AND PLACER COUNTY WATER AGENCY REGARDING WATER SERVICE

This Memorandum of Understanding is entered into this 25th day of October, 2005, by and between the Placer County Water Agency ("Agency") and the City of Lincoln ("City").

WHEREAS, the Agency and the City have entered into a water supply contract dated February 27, 1998 and amended on July 13, 1999 and November 7, 2002.

WHEREAS, the pace of urban development within the Agency's service area, including within the City, is rapid and together with proposed changes in the General Plans of the City and the County of Placer, the Agency and the City are challenged to ensure that there is an adequate water supply and adequate infrastructure to meet all of the potential water needs within their service areas in a timely manner.

WHEREAS, the Agency and the City desire to work cooperatively on the implementation of both a local Integrated Resources Plan being developed by PCWA, and on a broader Plan being developed by the Regional Water Authority that include regional surface water diversion, treatment and delivery infrastructure, groundwater management, reclaimed water use, demand reduction and funding elements to adequately meet the future water needs within the Agency and the City.

WHEREAS, there is a need by the City to develop new water transmission facilities for City's proposed planning areas north of Athens Road, from Highway 65 west to Fiddyment Road, including future interties with the Agency at Industrial Boulevard and Fiddyment Road.

WHEREAS, the City has made extensive efforts to provide retail water service to the Thunder Valley Casino facilities on the north side of Athens Road and within the City's sphere of influence in a manner that is consistent with and supports the construction of the new transmission facilities mentioned above, including obtaining pending environmental regulatory approvals for said water service.

Now, therefore, the parties mutually agreed to the following principles for their collaboration on the provision of water in the future.

1. Once the City completes the necessary infrastructure required to serve the properties north of Athens Road, the City shall be the water purveyor for all new customers on the north side of Athens Road, and the Agency, to the extent permitted by law, will transfer its existing water customers, including the Thunder Valley Indian Casino, on the north side of Athens Road to the City, and the City shall defend, protect, hold harmless and indemnify the Agency in the event of any litigation against the Agency challenging the legality of the Agency transferring such customers to the City without the customer's approval.

- 2. The City and the Agency will work together to identify the City water facilities that may be needed to accept anticipated deliveries from the proposed Sacramento River diversion to serve lands within the City's sphere of influence.
- 3. The City agrees to work cooperatively with the Agency to develop funding mechanisms for joint use water facilities.
- 4. The City and Agency will work together with the City of Roseville and the County of Placer to develop a sub-regional Water Resources Plan that will effectively integrate surface water, groundwater, reclaimed water and demand reduction programs to efficiently and reliably meet the build-out demands of the parties' service areas. The goals of the plan will include sustaining groundwater levels and protecting groundwater quality; developing joint or cooperative groundwater management plans; optimizing the cost effective use of reclaimed water through exchanges between purveyors and the sale of surplus reclaimed water to meet some of the Agency's Zone 5 agricultural water demands in lieu of using water that could be treated to meet domestic demands within the City; and, implementing cost effective conservation measures.
- 5. The Agency will support the City's efforts to design and construct needed infrastructure for use of reclaimed/recycled water within and outside the City limits and sphere of influence, and support the City's efforts to acquire grants from Proposition 50, WRDA, and other sources.
- 6. The Agency and the City will work together to develop a new agreement that will specify conditions for the City's delivery of potable water from the Agency to the "high elevation lots" in the Verdera Development (including residential, commercial and golf course related development). This agreement will specify the wholesale billing and water accounting system through the existing master meter and the second master meter planned to supply the Verdera Development. The second master meter is planned at the proposed City Pond site at the end of the proposed Phase 3-Thirty (30") pipeline.
- 7. The City will support the Agency's water resource protection efforts, including: securing permits for the construction of the proposed Sacramento River diversion, securing the long term renewal of PCWA's Central Valley Project water supply contract and amending the CVP service area to include the MFP water rights place of use, securing an extension of time for Agency's water rights permits, relicensing of the Middle Fork Project, and the participation in relicensing of the PG&E Drum-Spaulding project and securing the renewal of the Agency's Yuba Bear River water supply contract.
- 8. The Agency will work cooperatively with the City and Nevada Irrigation District to develop a future potable water source for the portion of the City that is within the boundaries of NID

9. The Agency and the City agree to offer each other the opportunity to participate in any water studies conducted or commissioned by each as well as data and results as requested.

Placer County Water Agency

By: Pauline Kiccucci

City of Lincoln

Mayor

Attest:

Clerk of the Board of Directors

Attest:

# Appendix C-2 – Bickford Agreement

# SUPPLEMENT TO CONTRACT BETWEEN PLACER COUNTY WATER AGENCY AND CITY OF LINCOLN FOR A WATER SUPPLY

## RECITALS.

- A. On February 24, 1998, the Agency and Lincoln entered into a water supply contract which is hereinafter referred to as "The Contract." The Contract provides, among other things, that Lincoln may increase its maximum delivery entitlement by paying to the Agency an amount equal to that portion of the Agency's Water Connection Charge (WCC) applicable to Lincoln.
- B. The Agency is considering the construction of a 42 inch water pipeline through the Bickford Ranch Project ("the 42" pipeline") to provide service to Lincoln, as well as the Bickford Ranch Development, and Lincoln has offered to assist the Agency in financing the 42" pipeline by providing to the Agency \$4,000,000, provided that Lincoln's maximum delivery entitlement is increased by that payment in accordance with the provisions of The Contract using the Agency's WCC in effect on November 2, 2006.
- C. On November 2, 2006, the Agency Board of Directors agreed that Lincoln could increase its maximum delivery entitlement based on the WCC in effect on November 2, 2006, provided that Lincoln deposits \$4,000,000 with the Agency and agrees to the terms of this Supplement to The Contract on or before December 13, 2006.

## NOW THEREFORE, IT IS AGREED AS FOLLOWS:

- 1. Lincoln hereby agrees to pay the Agency \$4,000,000 on or before December 13, 2006.
- 2. Lincoln also agrees to construct and convey to the Agency on or before June 1, 2008 new metering station to the Agency's specifications at Lincoln's City Pond Site to effect the delivery of water through the 42" pipeline to Lincoln's system, and to convey to the Agency fee title to sufficient land for the metering station and for the Agency to locate a pressure reducing station for its needs and to facilitate the operation and maintenance of the facilities, together with any necessary access easements provided that Lincoln's maximum delivery entitlement is increased by the audited costs for the metering station in accordance with the provisions of The Contract using the Agency's WCC in effect on November 2, 2006.
- 3. The Parties hereby agree that upon the Agency's receipt of the payment and the metering station and land title described in Paragraph 2, but not before June 1, 2008:
  - (a) Lincoln's maximum delivery entitlement under The Contract shall be increased in accordance with the provisions of The Contract on the basis of the WCC in effect on November 2, 2006;
  - (b) Lincoln shall have an exclusive reserved right to that portion of the capacity of the 42" pipeline equal to the proportion that the \$4,000,000 bears to the total cost of the planning, design and construction of a minimum 42" diameter pipeline from the future Ophir Water Treatment Plant to the proposed metering station at Lincoln's Pond Site;
  - (c) The Agency will use any excess capacity that may exist in the Bickford

    Pump Station after meeting the demands of the Bickford Development to

pump from the Agency's Foothill system through the 42" pipeline to meet Lincoln's demands for water until the Agency's Ophir water treatment plant, storage and transmission facilities are in service, after which the use of the Bickford Pump Station will not be necessary to delivery water to Lincoln through the 42" pipeline.

- 4. Lincoln shall not be required to pay the Agency's monthly service charges, the state and federal mandated charges and renewal and replacement charges for the EDU's associated with the \$4,000,000 payment until the completion of the 42" pipeline and associated facilities to be completed by others, or until June 1, 2008, whichever occurs later. Thereafter these charges shall be assessed regardless of the completion of the metering station or delivery of any part of the increased delivery entitlement.
- 5. Lincoln is hereby granted an extension of time for completion of the 30 inch diameter Phase 3 pipeline described in the July 13, 1999 Supplement to the Contract until May 1, 2012.
- 6. Except as supplemented and revised here, the provisions of The Contract remain in full force and effect.

IN WITNESS WHEREOF, the parties have executed this Supplement to The Contract as of the date first written above.

PLACER COUNTY WATER AGENCY

PLACER COUNTY WATER AGENCY

Chair of the Board of Directors

Clerk, Board of Directors

P.O. Box 6570

Auburn, California 95604

APPROVED AS TO FORM:

Placer County Water Agency Counsel

CITY OF LINCOLN

Mayor

ATTEST:

Clerk, CITY OF LINCOLN

1390 First Street

Lincoln, California 95648

APPROVED AS TO FORM:

Lincoln City Attorney

## **Placer County Water Agency**

Business Center: 144 Ferguson Rd. • Mail: P.O. Box 6570 • Auburn, California 95604-6570 (530) 823-4850 800-464-0030 www.pcwa.net



A Public Agency

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Otis Wollan • Lowell Jarvis
Michael R. Lee
David A. Breninger, General Manager
Ed Tiedemann, General Counsel

December 13, 2006

Gerald Johnson City of Lincoln 640 5th Street Lincoln CA 95648

RE: SUPPLEMENT TO CONTRACT BETWEEN PLACER COUNTY WATER AGENCY AND CITY OF LINCOLN FOR A WATER SUPPLY

Dear Mr. Johnson:

Enclosed find two copies of the contract referenced above, which was approved by the Board of Directors on December 11, 2006. Please execute both copies and return them to me. After I have obtained the Agency Chairman's signature, a fully executed original will be returned to you.

If you have any questions, please contact Brian Martin at 530.823.4801.

Sincerely,

Darcy Efickson

**Enclosures** 

# Appendix C-3 – Letter from PCWA April 7, 2011



PLACER COUNTY WATER AGENCY

SINCE 1957

BOARD OF DIRECTORS BUSINESS CENTER

Gray Allen, District 1 144 Ferguson Road

Alex Ferreira, District 2 Lowell Jarvis, District 3

Mike Lee, District 4 Auburn, CA 95604

MAIL

Ben Mavy, District 5

PHONE 530 823 4850

PO Box 6570

David Breninger, General Manager Ed Tiedemann, General Counsel

800 464 0030 WWW PCWA NET

April 7, 2011 File No. City of Lincoln

Jim Estep, City Manager City of Lincoln 600 Sixth Street Lincoln, CA 95648

SUBJECT: Status of PCWA Surface Water Supply to the City of Lincoln

Dear Mr. Estep:

This letter is being provided to the City of Lincoln in accordance with Article 5, (c) of the Water Supply Contract (Contract) dated February 24, 1998, and Supplement dated July 13, 1999, which states:

Commencing on January 15, 1999, and continuing annually thereafter, the Agency shall notify Lincoln in writing of the then remaining water and capacity which the Agency is able to deliver to and from the Foothill-Sunset Water System, and the amount of the water and capacity which has been committed to and from the Foothill-Sunset System since the date of the immediately preceding report.

## **SUMMARY OF WATER AVAILABILITY:**

The last request by the City of Lincoln for additional water delivery was made in 2006 and the Agency granted this request. Based on the water connection charges paid and the Supplement to the Contract between PCWA and City of Lincoln dated December 11, 2006, Lincoln's maximum water deliveries are as follows:

- Regulated Deliveries (Areas in Lincoln served by Lincoln's storage facilities) have a maximum day water delivery of 17,774,452 gallons per day.
- The City of Lincoln has paid for an additional 408.5 EDU's as a contribution to construct the proposed Bickford pipeline from the proposed Bickford tank to the proposed metering station at the City's pond site. Also, Lincoln will receive an additional EDU credit at completion of constructing the Phase 3 pipeline and the new metering station and pressure reducing station that will be located on the City's pond site. This credit will be in proportion to the cost. It is anticipated that the monthly

charges related to these credits will be deferred until acceptance of the facilities by PCWA.

• Unregulated Deliveries (Areas of high elevation lots served by PCWA's storage facilities) have a maximum day water delivery of 726,972.5 gallons per day.

The maximum day delivery of water in 2010 for the regulated meter had a recorded flow of 12,960,515 gallons and the maximum day flow for the unregulated meter in 2010 was 464,884 gallons.

## TREATMENT PLANT CAPACITY

In 2010 the Foothill and Sunset Water Treatment Plants (WTP) combined produced 49.885 mgd on the maximum day of the year. It should be noted that in 2006 the Foothill/Sunset system had a maximum day flow of 55 mgd and Lincoln's max day was over 14 mgd. This was during the height of the building boom and we believe a portion of the maximum day was for construction water and for houses that are now standing empty. The Foothill/Sunset system currently has a treatment capacity of 63 mgd. The Agency estimates there is about 5.9 mgd of capacity related to customers that have paid the Water Connection Charges, however, the demand has not or is not being realized in the PCWA system. For 2010 approximately 5.0 mgd of this unrealized capacity is related to the City of Lincoln. Based on the 2010 maximum day in the Foothill/Sunset system there is approximately 7.2 mgd of unallocated capacity which is available on a first come first serve basis. This is after subtracting the capacity of customers that have paid the water connection charge but are not utilizing the water. This could be attributed to vacant or un-built houses.

The Agency is currently in construction on the expansion of the Foothill Water Treatment Plant by 3.0 million gallons per day (from 55 mgd to 58 mgd). This will increase the Foothill/Sunset Water Treatment Plant System capacity from 63 mgd to 66 mgd. It is expected that this project will be completed in July of this year. After completion approximately 10.2 mgd of capacity will be available on a first come first serve basis from this system.

## RAW WATER SUPPLY CAPACITY

In past years, the Agency has informed the City of Lincoln that PCWA's treated water supply out of the Foothill Water Treatment Plant might be constrained prior to the completion of our permanent American River Pump Station. The American River Pump Station project is now complete, however, the pipeline to deliver raw water from the American River to the Foothill WTP has been delayed due to the downturn in housing development. As of March 17, 2010, the Agency has 1804 acre feet (2,775 EDU's) available prior to constructing this pipeline. The Agency has developed an alternative that will deliver American River Water to the Dutch Ravine Canal system. This \$22,000,000 project is currently in design and will free up additional Yuba Bear River water to be conveyed to the Foothill Water Treatment Plant. Current plans are to put this pipeline out to bid in June of this year with a completion date in the fall of 2012.

## **TRANSMISSION PIPELINE**

As indicated in prior reports, Phase 1A, 1B and Phase 2 of the Penryn/Lincoln Pipelines have been

completed and placed in service. On June 4, 2003 the 14 inch pipeline that had historically been serving the City of Lincoln was valved off and all water from PCWA is now conveyed through the Lincoln Metering Station. To provide some additional reliability to Lincoln, the Agency has not "cut" the 14 inch pipeline. Lincoln has requested that the 14 inch pipeline connection remain mactive but operable until the new Phase 3 Penryn/Lincoln Pipeline has been completed.

On December 11 of 2006 the Agency and the City of Lincoln entered into a supplement to the water supply contract for the City of Lincoln. The supplement extends the completion date for the Phase 3 portion of the Penryn/Lincoln Pipeline to May 1, 2012. During the last year or so there has been work performed on this pipeline design. In prior meetings with the City representatives PCWA has indicated that the Agency can provide 17.7 mgd to the existing metering station near Catta Verdera. This would provide about 82 pounds per square inch of pressure for the unregulated meter that serves the Lincoln customers in the high elevation lots of Catta Verdera. Once this 17.7 mgd is reached the Agency is capable of providing an additional 5 mgd through the proposed Phase 3 pipeline and City Pond Metering Station. However, it is the City's responsibility to design and construct the Phase 3 pipeline and City Pond Metering Station to provide the added water to the City of Lincoln.

On a recent field meeting with PCWA and Lincoln staff, PCWA was informed that the altitude valve at the entrance to the City's 5 million gallon storage tank is not operational. There is currently about a 110 psi pressure drop from PCWA's transmission system to the City's storage tank. PCWA has valves that reduce this pressure however the purpose of the PCWA valves is to assure proper metering of the water flow. The altitude valve of the City's tank is there as a failsafe back up to protect the City's tank and distribution system from being over pressurized and damaged. PCWA strongly recommends that the City place the altitude valve in an operational status.

If you have any questions or would like to discuss the matters addressed in this letter please feel free to call me at (530) 823-4883.

Sincerely,

Brian C. Martin, P.E.

Director of Technical Services

BCM:ns

pc. Dave Breninger

Bruce Burnworth, Lincoln City Engineer

Mark Miller, Lincoln Director of Public Services

C. Marti

Lincoln Water Resources Committee

Ed Tiedemann

Eınar Maisch

Brent Smith

Tony Firenzi



## Temporary Water Sales Agreement Between the Nevada Irrigation District (NID), Placer County Water Agency (PCWA), and the City of Lincoln (Lincoln)

This agreement is made and entered into this 26<sup>th</sup> day of October, 2004, by and between the Nevada Irrigation District, hereafter referred to as "NID", Placer County Water Agency, hereafter referred to as "PCWA", and the City of Lincoln, hereafter referred to as "Lincoln".

## Recitals

- A. NID is authorized to provide water for irrigation, municipal and domestic use within its boundaries, in accordance with Division 11 of the California Water Code. PCWA is a county water agency created in 1959 by the California Legislature (statutes of 1957, Chapter 1234) and is authorized to provide water for the same uses within its service area.
- B. NID's boundaries overlap portions of PCWA's Zone 1 service area and Lincoln's city limits.
- C. Lincoln currently purchases treated surface water from PCWA pursuant to a long-term contract between Lincoln and PCWA, and delivers the treated water to its customers, some of whom are in that portion of the city that is also within the boundaries of NID.
- D. NID currently does not have infrastructure to provide treated water within its service area in the vicinity of Lincoln.
- E. NID and Lincoln have entered into an agreement for joint planning and site evaluation of a domestic water treatment plant to be owned by NID to serve Lincoln's long-term needs within NID's boundary.
- F. PCWA currently has infrastructure in place to treat and deliver surface water to Lincoln for use by customers of Lincoln within NID's boundaries, but requires raw water from NID for treatment and delivery to Lincoln for re-delivery to residents within NID's boundaries.
- G. NID has raw water available that can be temporarily delivered to PCWA for this purpose until such time as NID has other means available to serve Lincoln's needs within NID's boundary.
- H. PCWA is desirous of substituting NID's water for the water PCWA now delivers to Lincoln for use within NID's boundaries so that it can reallocate a similar amount of water to PCWA customers which may include Lincoln, for use outside of NID's boundaries.

 Lincoln is desirous of purchasing additional treated water capacity from PCWA's system throughout the life of this temporary water sales agreement.

### **AGREEMENT**

Now, therefore, the parties mutually agree as follows:

- NID agrees to sell PCWA raw water that will be delivered to PCWA's treatment plants. PCWA will treat and deliver equivalent quantities of water to Lincoln, less losses, for distribution to customers of Lincoln that are within the boundaries of NID as described in Exhibit A.
- 2) NID water delivered and sold to PCWA including a 10 percent loss factor will be measured and will be equal to an amount retailed by Lincoln to customers within the boundaries of NID plus the 10 percent loss factor.
- 3) Lincoln will ensure that all treated water use within NID's boundaries will be metered and Lincoln will provide such metered water sales information that will include a 10 percent loss factor to NID and PCWA on a monthly basis. An annual water balance will be completed by NID by January 31 of each year.
- 4) PCWA shall pay NID for water delivered at the NID's municipal rate for raw water, subject to changes to that rate authorized by NID's Board from time to time. (Rate Schedule 5-R)
- 5) Water sold and delivered by NID under the terms of this agreement is untreated water which has flowed in open canals, conduits and flumes, and which has been stored in reservoirs. Such water is not potable and NID does not represent or guarantee that it is fit for domestic purposes. PCWA shall be solely responsible for any treatment, storage, or transmission of said water to Lincoln for human consumption in accordance with laws and regulations applicable to potable water.
- 6) Raw water delivered by NID under this agreement is subject to scheduled and unscheduled outages. It will be PCWA and/or Lincoln's responsibility to provide an alternate treated water supply during such outages so that deliveries to Lincoln's customers by NID will not be disrupted.
- 7) It is understood and agreed that in a year which is considered or deemed by NID to be a drought year or in a year which in the estimation of NID requires rationing or curtailment of water use, NID at its discretion may impose a drought surcharge, and/or reduce or restrict the raw water service to PCWA, in proportion to any reduction, limitation or curtailment of treated water customers within the District.

- 8) It is understood and agreed that in any year in which PCWA determines it must ration or curtail water deliveries in its Zone 1, and if NID is able to deliver water to PCWA, for delivery to Lincoln, PCWA will make that water available to Lincoln for delivery to Lincoln's customers in NID's boundaries.
- 9) It is also understood that PCWA shall not be required to deliver water to Lincoln obtained from NID pursuant to this agreement whenever PCWA determines that it does not have sufficient capacity in its facilities to treat and deliver such water to Lincoln. PCWA will notify NID whenever PCWA does not have capacity to deliver such water to Lincoln.
- 10) This agreement is intended to be a temporary agreement to be in effect until such time as NID constructs a treatment plant and other facilities sufficient to enable NID to supply treated water to Lincoln for those customers within Lincoln that are also within NID's boundary. This agreement is not intended to usurp nor weaken NID's water rights nor customer base.
- 11) This Water Sales agreement may not be modified without the express written consent of NID, PCWA, and Lincoln.
- 12) NID, PCWA, and Lincoln will each comply with all legal requirements applicable to each of their respective services and obligations under this agreement.

City of Lincoln

Mayor

City Clerk

**Nevada Irrigation District** 

George Leipzig

devige Leipzig

∕ Secretary Lisa Francis Tassone

**Placer County Water Agency** 

Chair of the Board

loard Secretary



1036 W Main St • PO Box 459003 • Grass Valley, CA 95945 • (530) 273-6185 From Auburn & Lincoln: 1-800-222-4102 FAX: 477-2646 www.nid.dst.ca.us

November 23, 2004

Jerry Johnson City Manager City of Lincoln 1390 First Street Lincoln, CA 95648

Dear Mr. Johnson,

I am writing this letter as added clarification of the Temporary Water Sales Agreement between the Nevada Irrigation District, Placer County Water Agency, and the City of Lincoln.

For the purpose of water sales and water sale auditing, the District is in agreement with the NID boundaries as depicted in the Eco:Logic map prepared July 15, 2004 by Lisa Haldane and titled "Figure 1: NID Service Area Boundary within City of Lincoln Proposed Sphere of Influence". The Eco:Logic map shows lots dissected by the NID boundary and to be served with District water highlighted in blue, and those highlighted in dark green excluded from the NID service area. The District is in agreement with the service area as delineated on the Eco:Logic map.

Item one of the Temporary Water Sales Agreement between NID, PCWA, and Lincoln refers to customers of Lincoln that are within the boundaries of NID as described in Exhibit "A". The District agrees that the Eco:Logic map shall be presented as Exhibit "A" in the agreement.

I hope this letter helps to clarify and finalize The Temporary Water Sales Agreement between NID, PCWA and Lincoln.

Sincerely,

Ron Nelson

General Manager

u Selgar

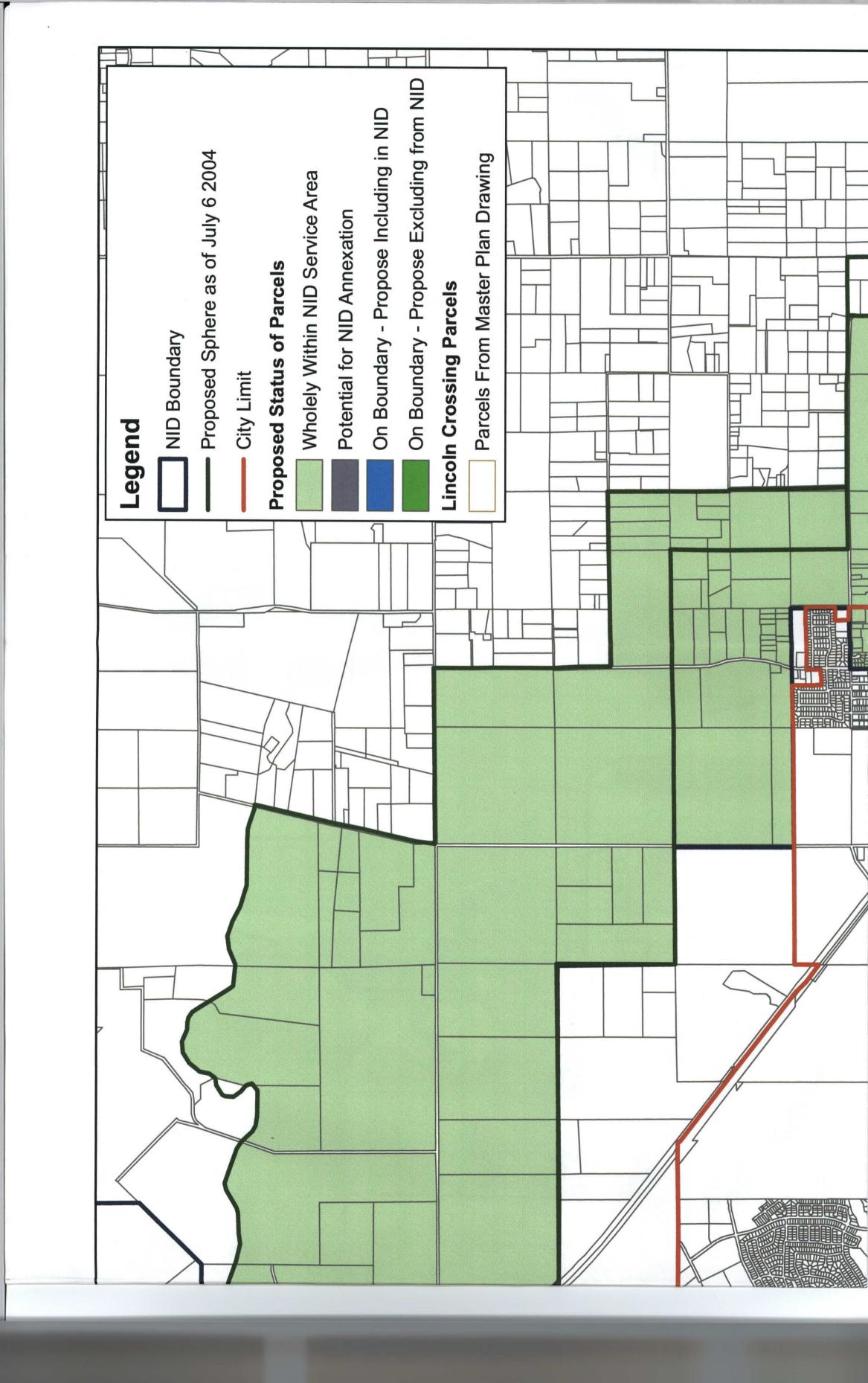
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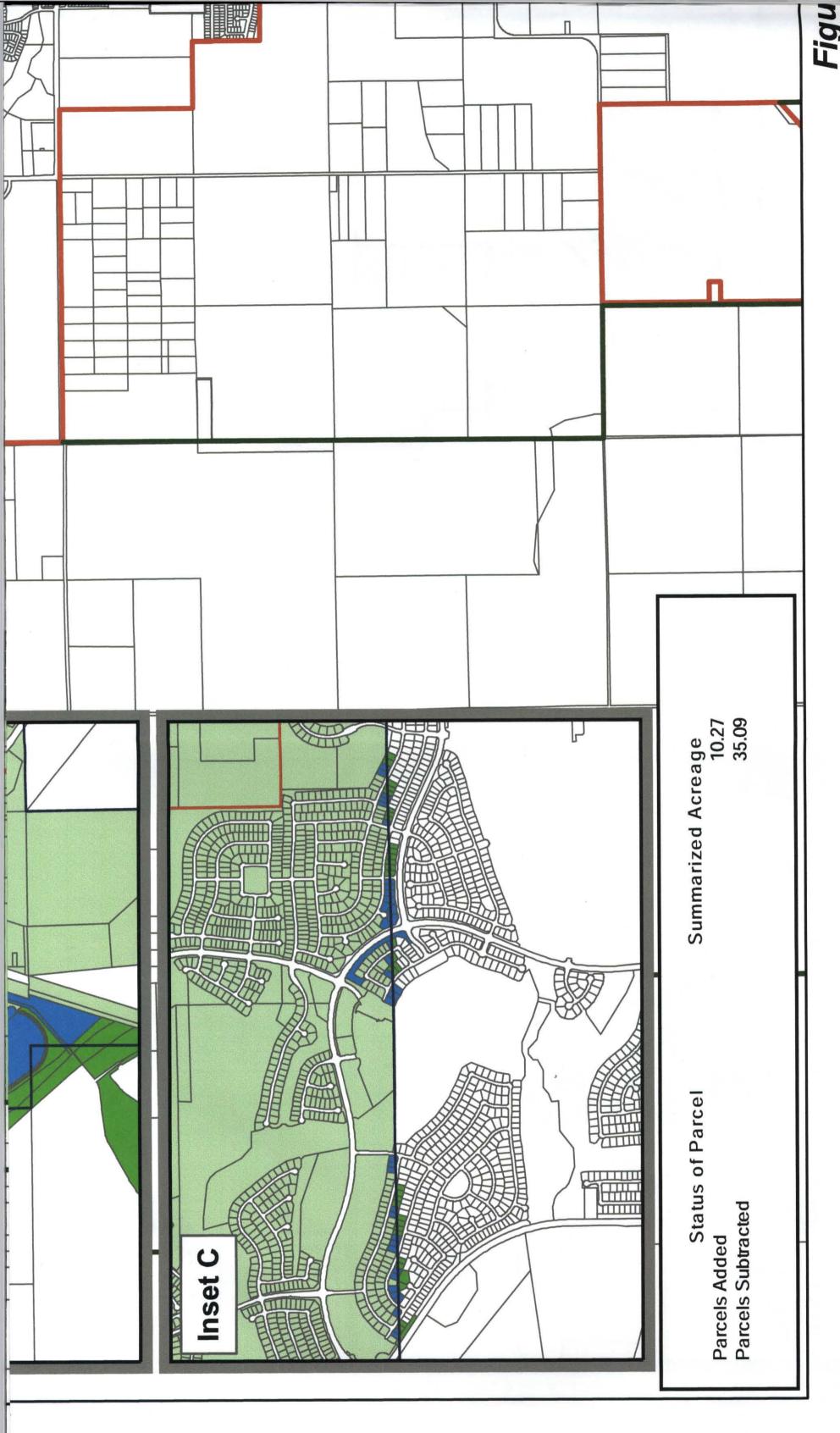
cc:

John Pedri

Brian Martin







# ECO:LOGIC

Prepared by: L Haldane

Figu NID Service Area City of Lincoln Propos

Boundary within ed Sphere of Influence

Draft: July 15 2004

**Placer County Water Agency** 

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6570

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Michael R. Lee David A. Breninger, General Manager Ed Tiedemann, General Counsel

November 24, 2004 File No. Facilities File

Mr. Gerald F. Johnson, City Manager City of Lincoln 640 5th Street Lincoln, CA 95648

SUBJECT:

Application for Increasing City of Lincoln's Maximum Water Delivery per the 1998 City

of Lincoln – PCWA Water Supply Contract/Supplement

Dear Mr. Johnson:

This letter is to acknowledge receipt of the City of Lincoln's (Lincoln) letter dated November 22, 2004 which requests increases in the maximum water delivery to the City of Lincoln.

The Agency will be processing Lincoln's request for the following at its December 2, 2004 meeting:

- 2,369 WCC (EDU's) at the rate of \$6,815 per 1,150 gallons per day.
- 339 WCC (EDU's) at the rate of \$8,122 per 1,150 gallons per day for the high service area with the City of Lincoln.

The Agency has no objection to Lincoln retaining the \$4,000,405 for design and construction of the Phase 3 pipeline; however, the Agency cannot grant Lincoln credit for EDU's at the \$6,815 rate. In Article 4C, Phase 3 of the "Supplement to Contract Between Placer County Water Agency and City of Lincoln for a Water Supply" dated July 13, 1999 the last sentence states the following:

"Lincoln shall fund the full cost for the design and construction of Phase 3, and upon completion and acceptance by the Agency, Lincoln shall receive credits for this funding of Phase 3 as provided for in Article 5(d) below."

Consequently, the Agency will provide credit for the construction of the Phase 3 pipeline at the WCC rate in effect at the time of acceptance of the Phase 3 pipeline.

If you have any questions, please do not hesitate to call me at (530) 823-4886.

C. Martin

Sincerely,

Brian C. Martin, P.E.

Director of Technical Services

BCM:bb

pc:

PCWA Board of Directors

David Breninger John Pedri

## **Placer County Water Agency**

Business Center: 144 Ferguson Rd. • Mail: P.O. Box 6570 • Auburn, California 95604-6570 (530) 823-4850 800-464-0030 www.pcwa.net

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Ed Tiedemann, General Counsel

January 27, 2005

Linda Stackpoole City Clerk City of Lincoln 640 5<sup>th</sup> Street Lincoln, CA 95648

Re: Temporary Water Sales agreement Between NID, PCWA, and the City of Lincoln

Dear Ms. Stackpoole:

I received a copy of the above referenced contract from the City of Lincoln. The copy is signed by Mayor Short but the signatures by NID and PCWA are not original but photocopies. I understand that NID received the same photocopies as PCWA.

I have checked with our Agency legal counsel Ed Tiedemann and he advises that we should recirculate the three contracts to all parties to sign so that all parties end up with a fully executed original for their files. Accordingly, I have enclosed three copies for recirculation for original signatures. Please have the Mayor sign each document. Once the Mayor has signed the three contracts, please send them to NID for execution and thereafter for forwarding back to PCWA. I will send the City and NID fully executed originals.

Thank you.

Sincerely,

PLACER-COUNTY WATER AGENCY

Cheri Sprunck

Agency Secretary/Clerk to the Board

Enc.

C:

Gerald Johnson Ronald Nelson, NID David A. Breninger Ed Tiedemann

Appendix C-5	2004 NID Lincoln	Planning and Phasin	ng Agreement	

## AGREEMENT FOR JOINT PLANNING AND SITE EVALUATION FOR DOMESTIC WATER TREATMENT PLANT

Nevada Irrigation District (NID) and the City of Lincoln (Lincoln), having agreed to cooperate and jointly evaluate the development of domestic water treatment capacity to serve areas of NID both within and outside the city limits of Lincoln, and to share the conclusions, results, recommendations of any evaluations in connection therewith, do hereby agree as follows.

### **RECITALS**

- 1. Lincoln provides treated water service within its city limits and requires an assured wholesale supply of treated water in order to provide said service to meet the growing demands of Lincoln.
- 2. NID is an irrigation district whose political boundaries overlap portions of Lincoln's city limits and it is authorized to provide retail and/or wholesale water service within its political boundaries, including within Lincoln.
- 3. NID and Lincoln agree that NID should develop a source of treated water available for wholesale service to Lincoln for resale to all of Lincoln's customers within NID's boundaries and for retail distribution by NID to customers within NID's boundaries not otherwise served by Lincoln.
- 4. Lincoln currently purchases treated surface water at wholesale from Placer County Water Agency (PCWA) and, in part, is utilizing water received from PCWA for the provision of retail treated water service to customers of Lincoln that are within the political boundaries of NID.
- 5. Lincoln has experienced substantial growth in its political boundaries and in its population and said growth is expected to continue. Lincoln is currently evaluating an expansion of its city limits in order to accommodate additional growth projected within its sphere of influence. Such growth in the city boundaries shall expand the area in which the political boundaries of NID and Lincoln overlap.
- 6. Lincoln seeks a permanent supply of treated water from NID at wholesale in sufficient quantity to allow Lincoln to serve all those customers within NID who are within the city limits so that water purchased from PCWA can be used by Lincoln for demand projected to occur outside NID's boundaries.
- 7. NID does not have adequate treatment capacity within the vicinity of Lincoln and Lincoln and NID agree that a large treatment plant, able to serve all of Lincoln's wholesale requirements within NID, and NID's retail obligations not within the City of Lincoln is the most

efficient method of developing such capacity.

- 8. NID has initiated the planning for a treatment plant sufficient to provide both wholesale service to Lincoln and retail service to NID's customers.
- 10. In order to ensure that the preparation of such a study can proceed on a timely basis, NID has already prepared and distributed a request for proposals (RFP) for the planning and site study. Lincoln has reviewed the RFP, has approved it, and desires to participate with and cooperate with NID in the development of the study and to share in the conclusions and recommendations made by the study and in consideration for its participation in and use of the study results, Lincoln has agreed to share with NID in the costs of the study.

NOW, THEREFORE, for adequate consideration, receipt of which is hereby acknowledged, NID and Lincoln do agree as follows.

### **AGREEMENT**

- 1. Lincoln hereby ratifies the RFP heretofore issued by NID. Lincoln jointly with NID, will evaluate the responses to the RFP. NID and Lincoln will consult and jointly approve the consultant to be retained by NID.
- 2. Upon selection of the consultant, NID shall enter into a contract with the consultant. Lincoln will not be a signatory thereof but will review and approve the form of contract and NID will ensure that the consultant acknowledges Lincoln's joint interest with NID in the study and its conclusions. NID will be responsible for the day-to-day administration of the service agreement with the consultant performing the study. NID will, on an ongoing basis, consult with Lincoln on all matters relating to the administration of the service agreement with the consultant. NID shall not alter, expand or decrease, the scope of work set forth in the RFP without prior consultation and approval from Lincoln. Upon its request Lincoln shall be copied on all correspondence to and from the consultant and will participate in all scheduled conferences, by telephone, e-mail, or in person.
  - 3. NID and Lincoln will each provide technical and administrative personnel as

required to monitor, direct, comment upon and review the study results. Lincoln and NID will each designate a technical working group ("Technical Committee") who will convene at least monthly, and more often if called by either party, for purposes of carrying out their responsibilities hereunder.

- 4. NID shall be responsible for payments to the consultant performing the study. Payments will be made in accordance with the progress payment schedule in the service agreement with the consultant. Lincoln shall reimburse NID for its share of the costs as invoiced by NID. Lincoln agrees that its share of the invoiced cost is 50%. Lincoln will not be responsible for any payments required as a result of change orders or scope changes approved by NID unless Lincoln has received prior notification thereof and it has agreed to pay its fifty (50%) percent share of such increased cost. All costs payable by Lincoln shall be billed by NID not more frequently than monthly and shall be paid by the City of Lincoln within \_30\_ days of invoicing by NID. Lincoln may, during business hours, request copies of and review all billings, invoices and records of NID underlying payment to the Consultant.
- 5. While it is agreed that the preliminary feasibility study under the RFP does not constitute a project under the California Environmental Quality Act ("CEQA"), NID and Lincoln will adhere to the requirements of the CEQA in the siting, design, and construction of the water facilities. The Technical Committee established under Paragraph 3 above shall, as part of its responsibilities, engage in routine evaluation of status of the project in light of the requirements of CEQA and will make appropriate recommendations to their respective governing bodies as to any steps that need to be initiated and/or modified as a result of compliance with CEQA.
- 6. This Agreement is whole and entire and may not be modified without the express written agreement of NID and Lincoln. Either party may terminate this Agreement with or without cause upon giving the other party thirty (30) days written notice thereof. During the thirty (30) day notice period, the parties shall meet in an attempt to determine the basis of any disagreement and an attempt to resolve same. Absent written agreement of the parties confirming the reestablishment of the agreement, the agreement will terminate, without further action, thirty (30) days after one or the other party gives notice of termination. In the event of termination, Lincoln and NID shall remain responsible for those consultant costs undertaken or incurred prior to the effective date of said termination. NID and Lincoln shall be jointly entitled to the consultant work product and supporting documents developed through the date of termination.
- 7. As long as this agreement remains in force and effect, no party will take any action in connection with the planning, design or siting of the treatment plant, as recommended by the study, absent the express joint approval of both Lincoln and NID.
  - 8. It is agreed by Lincoln and NID that decisions regarding future annexation of Lincoln

into areas then served treated water by NID, and issues involving responsibility for service in such areas, including ownership of constructed facilities, water rates and capacity fees, is beyond the scope of the agreement and will require additional negotiations and agreement.

Agreed to this Haday of February, 2004, at Lincoln.

California.

CITY OF LINCOLN

Mayor

City Clerk

NEVADA IRRIGATION DISTRICT

George Leipzig,

# **Appendix C-6 2007 Treated Water Facility MOU**

# MEMORANDUM OF UNDERSTANDING BETWEEN CITY OF LINCOLN AND NEVADA IRRIGATION DISTRICT ESTABLISHING INTENTIONS AND CONCEPTUAL FRAMEWORK FOR THE DEVELOPMENT OF A TREATED WATER FACILITY AND APPURTENANCES NEEDED TO SERVE CITY OF LINCOLN AND NEVADA IRRIGATION DISTRICT

### RECITALS

WHEREAS, the City of Lincoln ("Lincoln") and Nevada Irrigation District ("NID"), collectively the "Parties" entered into a MOU, dated February, 2004, under which they have undertaken preliminary planning, including site evaluations, for the acquisition, construction, ownership and operation of a domestic water treatment plant and related facilities (the "Project"); and

WHEREAS, NID and Lincoln have coordinated their planning for the construction of said Project in anticipation that, through economies of scale and coordinated planning, substantial areas of NID, including those areas of Lincoln located within NID, can be served from a common treatment plant; and

WHEREAS, Lincoln operates a domestic water distribution system supplied by its own wells, and by Placer County Water Agency; and

WHEREAS, currently, surface water needed to serve those customers of Lincoln within NID's boundaries must be treated by Placer County Water Agency ("PCWA") at PCWA's Foothill Treatment Plant ("FTP") because NID has no treated water facilities within the vicinity of Lincoln; and

WHEREAS, the FTP capacity and NID raw water delivery to FTP limit the supply of treated water Lincoln can serve within the NID boundaries; and

WHEREAS, prudent planning for the long-term provision of water service within

Lincoln will require the installation of an additional treatment plant to serve those areas within

Lincoln that are within NID as well as to serve NID customers outside Lincoln desiring treated water; and

WHEREAS, the Parties have regularly met for a period of 3 years in order to develop a common basis of understanding for the acquisition of said treated water capacity, its construction, ownership and operation by NID, and the terms under which service from said plant could be provided, at wholesale, to Lincoln to serve Lincoln customers residing within the NID boundaries, while also making service available to NID's own customers; and

WHEREAS, the Parties anticipate that the Project would move forward under four definitive agreements which will be (1) agreement on the respective service areas of NID and Lincoln; (2) agreement regarding the planning required to install the Project, including environmental evaluation; (3) agreement on terms and conditions of treated water service to be provided, at wholesale, by NID to Lincoln; and (4) agreement on the financing and construction of said Project; and

WHEREAS, the Parties, prior to negotiating and executing the definitive agreements referred to above, seek to establish under this MOU the framework under which the Project will proceed, and the concepts that will be pursued through the four agreements.

### **AGREEMENT**

- 1. The Recitals set forth above are incorporated herein as so set forth in full.
- 2. Exhibit "A" hereto, the Framework for Collaboration, sets forth the intention of the Parties that will govern the negotiation of definitive agreements required to plan, finance, and construct, own and operate the Project.
- 3. Exhibit "A" shall not constitute an agreement of the Parties, but represents an agreed upon statement of the intentions of the Parties that they will seek, through good faith

negotiations, to incorporate into the four (4) definitive agreements described above.

- 4. The Framework for Collaboration shall further be used to set forth those conditions and restrictions that each of the Parties intend to implement through their agreements; and to provide a brief outline and yardstick to measure the progress of the Parties by the respective governing bodies.
- 5. It is the intent of the Parties to proceed immediately with development of the agreement regarding the planning required to install the Project, with development and approval of the other three agreements to follow as closely as practical.
- 6. This agreement shall be effective upon execution by both Parties in the spaces indicated below.

Dated:

CITY OF LINCOLN

Dated:

NEVADA IRRIGATION ISTRICT

W.S. MILLER

4-25-07

PRESIDENT

### Exhibit "A"

# Framework for Collaboration Between the City of Lincoln (LINCOLN) and the Nevada Irrigation District (NID)

### **Definitions:**

Project Facilities: All or a portion of raw water and treated water facilities contemplated for

construction by both LINCOLN and NID to ultimately provide treated water to customers of LINCOLN within the NID boundary and to NID customers located within the general area surrounding and outside of LINCOLN city limits. "Facilities" may include one or more hydroelectric plants operated

incidental to the operations of the raw water and treated water facilities.

Project Phase: Specific and discrete units or combination of units of the infrastructure making

up a portion of the total of all facilities as defined herein.

### **Intended Elements of Governing Agreements**

### A. Service Area Agreement

### Water Rights:

- LINCOLN would not acquire water rights of NID, but a right to service. NID would be
  responsible for securing, maintaining, and, if feasible, expanding its surface water rights as
  needed to serve all of its customers, including Lincoln.
- Expansion of NID outside existing boundaries within the LINCOLN SOI would not be allowed under current policy.
- Service to LINCOLN, to the extent of its customers within NID, would not be curtailed except and to the extent that NID curtails its own domestic water customers using the same source water.
- NID and LINCOLN would agree to encourage treated water and irrigation water customers to employ water conservation practices.
- NID would support LINCOLN's management of the ground water basin within the LINCOLN SOI..
- LINCOLN would support NID's ownership of NID surface water rights and delivery and treatment infrastructure within and surrounding LINCOLN SOI.
- LINCOLN would support NID's requests to protect NID surface water infrastructure when affected by development within LINCOLN SOI.
- LINCOLN has developed a plan to distribute recycled water originating from LINCOLN'S
  Waste Water Treatment and Reclamation Facility (WWTRF) and to deliver same to areas
  within LINCOLN city limits within NID boundary. NID would support uses of recycled water
  for irrigation purposes within the developed areas in the overlap area between the NID
  boundary and LINCOLN city limits.
- LINCOLN would not distribute recycled water to areas outside LINCOLN city limits that are within the NID boundary without NID approval.
- NID recognizes LINCOLN's ability to provide recycled water to areas outside of the NID boundary.

### Taxes:

- NID would support LINCOLN annexations that overlap lands within the NID boundary provided LAFCO does not impose unacceptable conditions on NID.
- LINCOLN would support the annexation of "island exclusions" into NID that are within the LINCOLN SOI prior to LINCOLN providing treated water service.
- Regarding annexations of "island exclusions", LINCOLN will support tax-sharing agreements
  with Placer County that allow a tax increment to NID, and that is consistent with tax sharing
  agreements for all other lands common to NID and LINCOLN.
- LINCOLN would not support any proposal to shift or reapportion general-purpose taxes that
  would result in a reduction of NID'S current tax base, future tax increment, or percent of
  overall general-purpose tax revenue. Base, increment, and percentage would be based on
  tax sharing agreement between NID and Placer County.

### Changes in Organization:

- NID would support changes in LINCOLN'S SOI within the NID boundary to the extent feasible and practical, recognizing all demands within NID and the need to apportion NID resources in a reasonable manner.
- NID would support LINCOLN's applications to annex areas into its city limits that are within the NID boundary provided LAFCO conditions are reasonably acceptable to NID.
- LINCOLN would provide NID an opportunity to meet, discuss, and review documents with LINCOLN in draft stage, and provide written comments on updates to its General Plan, SOI, Groundwater Management Plan, proposed changes of organization to be filed with LAFCO, and Urban Water Management Plan.
- NID would provide LINCOLN an opportunity to meet, discuss, and review documents with NID in draft stage, and provide written comments on updates to NID's Raw Water Master Plan, Lincoln Treated Water Master Plan, petitions for changes of organization within Lincoln SOI, and Urban Water Management Plan.

### Facility Ownership:

- NID would own and operate the raw water pipelines and canals, water treatment plant, treated water storage, and treated water pipelines and real property and easements where same are located up to and excluding the LINCOLN Hydraulic Grade Line Control Station (HGLCS) Point of Service.
- LINCOLN would own and operate the LINCOLN HGLCS Point of Service, and the water transmission and distribution system, all located downstream of the HGLCS.

### Water Quality:

- NID would be liable for quality of the water up to the LINCOLN HGLCS Point of Service.
- LINCOLN would be liable for quality of the water downstream of the LINCOLN HGLCS Point
  of Service unless traced to water delivered from NID.

### Future Water Service Expansion:

- LINCOLN would not serve treated water or extend LINCOLN's treated water distribution
  system beyond LINCOLN city limits within the NID boundary without NID approval. LINCOLN
  has produced a map showing all existing parcels lying outside LINCOLN city limits and within
  the NID boundary that currently receive water. Information on the map includes the
  classification of land use of such parcels and the size of the treated water meter serving each
  parcel.
- NID would not extend LINCOLN treated water system as discussed herein prior to completion
  of the project phase that first offers availability of treated water.
- Upon annexation of NID lands into LINCOLN city limits, LINCOLN would reimburse NID the then current value of NID'S out-of-pocket expenses, less depreciation, associated with such

- NID treated water distribution components. NID would dedicate required treated water distribution components and easements to Lincoln upon such payment to NID.
- Treated water distribution components installed by NID that may be subject to dedication to the LINCOLN at some time in the future would be designed and constructed using mutually agreed-upon standards of NID and LINCOLN. Design and construction would also recognize that, subject to dedication, LINCOLN would eventually be responsible for operation, maintenance, and replacement of the treated water distribution components.
- NID may expand LINCOLN'S treated water distribution system into unincorporated areas, requiring LINCOLN and NID to jointly plan LINCOLN'S treated water distribution components that may, in the future, lend themselves to such an expansion. NID would reimburse or credit LINCOLN for all upgrades to LINCOLN'S system requested by NID on the basis of incremental upsizing of the new infrastructure.

### Mutual Aid:

 LINCOLN and NID would provide mutual aid to each others customers during emergencies and planned routine maintenance activities.

### **B. Planning Phase Agreement**

### General:

- The Planning Phase would include regional water-service planning, identifying the proposed project and project alternatives, preparing preliminary design and preliminary cost estimates, compliance with the California Environment Quality Act (CEQA), consultation with regulatory agencies, identifying financing options, and public awareness.
- The Planning Phase will conclude at such time as the NID Board of Directors adopts a Notice
  of Determination to proceed with a project as defined in the CEQA process.

### Implementation:

- NID would be the CEQA lead agency.
- NID would prepare requests for proposals (RFP's) for consulting services and select a firm(s)
  to perform the planning phase work, and NID would administer the consulting agreement, all
  in collaboration with the LINCOLN City Engineer.
- LINCOLN would participate with NID in all aspects of the Planning Phase including predesign, selection of alternatives, selection of the proposed project (for CEQA purposes), and completion of the draft and final environmental impact report.
- LINCOLN would have joint approval with NID of the Planning Phase Consultant Service Agreement task orders, task order addenda, and pay requests.

### Eligible Out-of-Pocket Costs:

- LINCOLN and NID would not request reimbursement for in-house labor, equipment, and materials cost; including overhead.
- LINCOLN and NID would request reimbursement for the other party's share of costs of outside services, such costs including contracted professional legal, engineering, and financial services.

### Cost Sharing – Three-Step Approach:

LINCOLN has collected capacity fees from parcels located within the NID boundary. These
parcels will ultimately be provided service from the proposed new water treatment plant.
LINCOLN would use such collected fees, or a credit for such fees, to initially fund all the
Planning Phase costs.

NID would participate in the Planning Phase costs at some time in the future, and to an
extent determined by the success or failure of a project, all as determined by a three-step
approach.

### First step:

- LINCOLN would pay, on an interim basis, 100% of all Planning Phase Consultant Services costs, and 100% of all LINCOLN and NID outside services costs.
- o NID would pay all invoices for Planning Phase Consulting Services.
- NID would bill LINCOLN monthly for 100% of the cost of NID outside services and 100% of Planning Phase consulting services paid to date.
- o LINCOLN would make payments within 45 days.
- LINCOLN would provide NID, on a monthly basis, a detailed running accounting of LINCOLN'S outside services.

### Second step:

 Should the Planning Phase fail to identify a project through the CEQA process or should a project fail to start construction, NID would reimburse LINCOLN 50% of LINCOLN'S cost of outside services, 50% of NID's outside services, and 50% of the cost of Planning Phase consulting services.

### Third step:

- o Should the Project proceed to construction, LINCOLN and NID would reallocate and carry forward the Planning Phase costs as a prorated share of the estimated facility costs. Estimated facility costs would be extrapolated from the engineering cost estimates provided during the CEQA process. Prorated LINCOLN and NID shares would be the sum of the following ratios:
  - LINCOLN and NID costs of shared portions of facilities and sole-use facilities as compared to the total project cost estimates.
  - LINCOLN and NID build-out demand ratios determined in the planning phase as compared to the total project cost estimates, less the cost of shared and sole-use facilities.
- Planning Phase funding does not correlate with, or reflect upon, allocation of costs associated with construction phase funding and construction phase cost allocation.

### C. Wholesale Treated Water Service Agreement

### Lands Served:

- No lands would be detached from the NID service area as a result of this Agreement.
- NID water would be used within the NID boundary under normal service conditions.

### Water Rates and Charges:

- LINCOLN and NID independently establish their fees and charges. Challenges to LINCOLN'S schedule of fees and charges would not restrict LINCOLN'S obligation to pay NID'S established wholesale rate. Notwithstanding the foregoing, NID'S wholesale rate to LINCOLN must be established in accordance with law.
- LINCOLN and NID would collect their own Equivalent Dwelling Unit (EDU) () fees (NID terminology: "Capacity Charges" and "Meter Installation Charges") (LINCOLN'S terminology: "Public Facility Element Fees" and "Water Connection Fees").
- NID would collect EDU charges from customers outside of LINCOLN city limits. Upon future expansion of facilities required to provide treated water capacity, NID would credit against LINCOLN'S obligation to fund such expansion in an equal amount.

### Water Deliveries:

- LINCOLN would request changes in daily water treatment plant production rates based on anticipated demands.
- LINCOLN would be responsible for control of the system hydraulic grade line and flow rate at the LINCOLN HGLCS Point of Delivery.
- NID would routinely provide LINCOLN with a list of NID project facilities (raw and treated) ranked according to their individual maximum capacities.
- LINCOLN would notify NID a minimum of 30 months in advance of anticipated demands that are expected to exceed the capacity of any portion of NID'S project facilities.
- Treated water deliveries to LINCOLN would be governed by NID'S then current Drought Contingency Plan.

### Water Accounting:

- NID would own and operate "master" meters in two locations: 1) immediately downstream of the treated water storage tanks and 2) at the LINCOLN HGLCS Point of Delivery.
- All LINCOLN and NID treated water connections to the respective water systems would be metered.
- LINCOLN and NID meters would be read monthly, nearly simultaneously, and the results shared on a monthly basis.
- NID would bill LINCOLN monthly for the total of LINCOLN'S meter readings serving the overlap area, plus a reasonable loss factor (currently estimated by NID staff at 10%).
- NID would periodically, but not less than annually, compare usage records between the
  master meter, LINCOLN meter readings, and readings from NID meters served from
  LINCOLN, and would adjust flows operationally to reconcile deliveries to LINCOLN.

### Wholesale Water Rate:

- NID would create a wholesale water rate, based on NID's system-wide allocated cost of service, to be charged to LINCOLN and other public entities receiving comparable service. Said rate would be modified from time to time. Wholesale rate-setting would be under the jurisdiction of NID. LINCOLN and other affected entities would participate as customers in the development of said rate with final discretion remaining with NID. Rate components may include, but not be limited to, account maintenance, meter maintenance and replacement, raw water component, treatment plant operations and maintenance, renewal and replacement of water system components providing service, and fees to cover State and Federal mandates.
- During the Planning Phase (see "Planning Phase Agreement" above), NID and LINCOLN
  would further collaborate on methods used and components to be included in setting of the
  wholesale water rates.
- Upon NID adopting changes in water rates or other charges affecting LINCOLN'S water bill, NID would give LINCOLN at least 90 days' notice prior to the effective date of such rates or charges.
- LINCOLN would continue to maintain a uniform service area-wide water rate for each of their retail customer classifications regardless of customer location, whether in or out of the NID boundary and within the same pressure zones.

### System Operation, Monitoring, and Reporting:

 LINCOLN and NID would operate their respective treated water systems in accordance with all applicable current and future State and Federal regulations using certified operators; including flushing, monitoring, sampling, backflow prevention, and associated reporting programs.  LINCOLN and NID would agree to share all monthly and monitoring information and required reporting information.

### D. Water Facilities Construction Agreement

### General:

- LINCOLN and NID would jointly determine the logical component of project facilities to be included in each project phase.
- This contemplated agreement would not apply to infrastructure to be financed, owned and
  operated by either LINCOLN or NID for their sole use, unless it is mutually agreed that such
  infrastructure would be included as part of the overall facilities and should be included with a
  project phase.
- LINCOLN and NID would determine separately the extent of Hydro components to be developed on their respective systems. (NID – on raw water system upstream or adjacent to the water treatment plant. LINCOLN – at their HGLCS Point of Service.)

### Services Required to Implement Project Phases

- Services procured and provided to complete each project phase would include:
  - o Engineering services (Consultants)
  - o Land and Easement Acquisition
  - o Construction Services (Contractors)
  - <u>LINCOLN</u> and <u>NID</u> Outside Services (Individuals or companies providing specialized services directly to LINCOLN or NID for general legal, engineering, and financial services relating directly to the facilities under consideration)
  - NID Engineering Services (In-house engineering performed by NID)
  - o NID Construction Services (incidental construction performed by NID crews)
  - <u>LINCOLN and NID In-house Services</u> (provided by either LINCOLN or NID incidental to administering and monitoring of all the above services.)

### Approvals Required for Project Phase Costs

Cost allocations would be mutually approved in writing by both LINCOLN and NID prior to incurring costs for any services associated with a project phase. The means and timing for such approval would be:

- Engineering Services: LINCOLN and NID would reach agreement prior to NID executing the agreements.
- <u>Land and Easement Acquisition</u>: LINCOLN and NID would each negotiate separately for lands and rights of ways required for their respective facilities component.
- <u>Construction Services</u>: LINCOLN and NID would agree to bid award amount prior to NID executing the contract(s).
- <u>LINCOLN and NID Outside Services</u>: LINCOLN and NID would agree to general scope, budget and schedule prior to either entity executing an agreement or contract.
- NID Engineering Services: LINCOLN would agree to general scope, budget and schedule prior to NID commencing the work.
- NID Construction Services: LINCOLN would agree to cost estimate and schedule prior to NID commencing the work.
- <u>LINCOLN and NID In-House Services</u>: Each entity would provide a monthly accounting of such services and each would reserve the right to challenge any such charges.

### **Execution of Project Phases:**

- NID would prepare requests for proposals (RFPs) for engineering services in collaboration with LINCOLN City Engineer.
- NID would award construction contracts and provide construction contract administration in collaboration with the LINCOLN City Engineer.
- LINCOLN would participate during the design and design review process and would have joint design approval with NID.
- LINCOLN would have joint approval with NID of Engineering Services pay requests.
- LINCOLN would have a representative(s) on site to monitor construction progress.
- LINCOLN's on-site representative(s) would be consulted and have joint approval with NID, time permitting, prior to issuing field directives to the contractor.
- LINCOLN would participate in the preparation of, and would have joint approval with NID of construction progress payments and contract change orders.

### Allocation of Project Phase Costs

- LINCOLN and NID would agree upon the cost allocation of project construction phase costs
  prior to entering into any contracts, agreements, or construction work, as it may relate to each
  project phase.
- Cost allocation of all project construction phase services would be based on prorated shares of facility construction costs. Cost allocations would be as follows:
  - NID would be allocated the construction costs, on an incremental-cost basis, of upsizing raw water transmission components for NID uses other than providing water to meet anticipated treated water service demands. NID would also be allocated the same prorated share of the cost of all remaining services. (See "Services Required to Implement Project Phases" above.)
  - NID would be allocated 100% of construction costs for portions of the facilities contemplated for the sole use of NID. NID would also be allocated the same prorated share of the cost of all remaining services
  - LINCOLN would be allocated the balance of the construction costs and remaining services costs. (Includes, among others, 100% of WTP and treated water storage facility costs.)
- NID would apply a credit against LINCOLN's share of construction costs, at the time of each future project phase; equal to all capacity charges collected by NID from NID treated water customers outside of LINCOLN city limits to be served by the NID Lincoln facilities.
- The cost allocation percentage would remain constant throughout execution of each project phase.
- Should actual construction costs vary from the cost estimates, then, and upon mutual
  agreement, final cost allocation for each project phase would be recalculated. Such
  recalculations would be completed as soon as possible; however, no later than the end of the
  warranty period for that particular project phase.

### **Construction Contract Liability**

- LINCOLN would accept liability for additional costs of construction contracts caused by lack
  of project funding on LINCOLN's share of project costs.
- NID would accept liability for additional costs of construction contracts caused by lack of project funding on NID's share of project costs.
- NID would accept liability for additional costs associated with its unilateral decision to terminate a construction contract.
- Each party would bear their proportionate share of construction cost overruns and changeorders. Litigation with contractor shall be considered a construction cost.
- Each party would bear their proportionate share of unanticipated increases in construction costs that are not caused by either party.

### Funding Mechanisms:

- LINCOLN and NID funding mechanism(s) would in no way encumber the other entity's facilities or financial resources.
- NID and LINCOLN would discuss funding mechanisms, including but not limited to, lease-back options and other forms of ownership arrangements. It is NID's and LINCOLN's intent for NID to be the owner of the facilities up to the LINCOLN HGLCS. LINCOLN would provide funding for their share of costs without encumbering the facilities.

### Payment of Cost Allocations:

- NID would bill LINCOLN monthly for cost of services paid for by NID and associated with each project phase, less NID's allocation of NID costs, less NID's allocation of the cost of services paid for by LINCOLN, and less any capacity charge credits due LINCOLN.
- LINCOLN would pay NID within 45 days of billing.

# NID Nevada Irrigation District

1036 W Main St • PO Box 459003 • Grass Valley, CA 95945 • (530) 273-6185 From Auburn & Lincoln: 1-800-222-4102 FAX: 477-2646 www.nid.dst.ca.us

April 25, 2007

Patricia Avila, City Clerk City of Lincoln 640 Fifth Street Lincoln, CA 95648

Re:

Memorandum of Understanding

Between the City of Lincoln and Nevada Irrigation District Establishing Intentions and Conceptual Framework for the Development of a Treated Water Facility and Appurtenances Needed to Serve City of Lincoln and Nevada Irrigation District

Dear Pat:

Enclosed please find one fully executed document referenced above.

If you have any questions, or require additional information, please feel free to give me a call.

Sincerely,

**NEVADA IRRIGATION DISTRICT** 

<del>`Lisa </del>≮rancis Tassone, CMC

**Board Secretary** 

Enclosure (As Stated Above)





### Nevada Irrigation District Regional Water Supply Project

### **Land Use and Water Demands**

Prepared By:

Cindy Bertsch, P.E.

Reviewed By:

Gerry LaBudde, P.E.

David Price, P.E.

Date:

September 2008

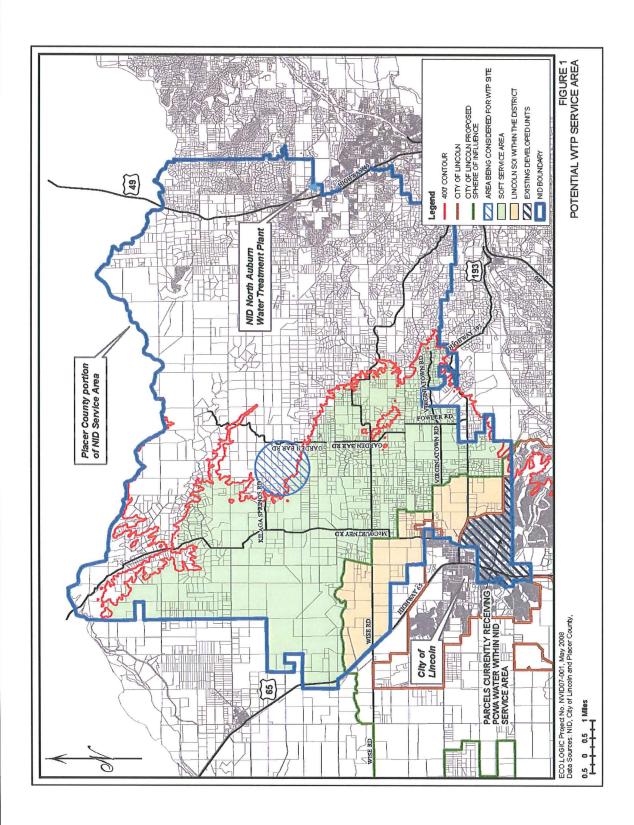
The purpose of this memorandum is to document water demand projections for the Lincoln area water treatment plant (WTP). This memorandum contains a description of current land uses within the anticipated service area and the associated treated water demand projections for the proposed Nevada Irrigation District (NID) Regional Water Supply Project. An estimate of the treated water demands is necessary to determine:

- The capacity of the WTP.
- The size of the raw and treated water storage facilities.
- The required raw water conveyance improvements including pipelines and canals.
- The sizing of treated water conveyance pipelines.
- The sizing and layout of the hydraulic control/metering station.

The potential for offsetting the amount of raw water used in the City of Lincoln's Sphere of Influence (SOI) resulting from a reduction in irrigation water delivered to those lands as they are converted from agricultural to urban uses will be discussed in a separate memorandum.

### 1.0 POTENTIAL SERVICE AREA FOR WTP

Lands in the Lincoln area that may potentially receive treated water from the new regional WTP can be separated into two service area classifications. The first is the portion of the City of Lincoln (City) proposed SOI within the NID service area boundary. The City SOI is described in the recently approved General Plan. The second is the unincorporated area of Placer County outside of the City SOI and inside the NID service area. Both service areas, for the purpose of this study, will be limited to lands below the 400-foot contour elevation to avoid the need to pump treated water. The anticipated service areas used to develop water demands are shown on Figure 1 and discussed below.



Nevada Irrigation District Water Supply Project NVID07-001

### 1.1 CITY OF LINCOLN

The City's portion of the potential service area includes the proposed City SOI which lies within the NID service area. Portions of this area are currently developed and are included within the City limits. The balance of the proposed SOI remains generally undeveloped for urban uses. Lands undeveloped for urban uses are anticipated to annex into the City limits and receive treated water. Planned land uses within the City's portion of the potential service area are described in Section 2 of this memorandum. It should be noted that the City has no plans to expand beyond the current proposed SOI.

Presently, through an agreement involving Placer County Water Agency (PCWA), NID, and the City's raw water from the NID system is being delivered through PCWA treatment facilities, sold to the City of Lincoln, and served as treated water to the developed areas within the NID service area. This is a temporary arrangement until the NID Regional WTP and other related improvements are completed and service is provided by the proposed NID facilities. The existing treated water demand within the NID boundary will be included in Section 3 of this memorandum.

### 1.2 UNINCORPORATED AREA

The proposed WTP is being considered for an area approximately four miles northwest of the City Limits in a region west of Garden Bar Road, east of McCourtney Road and south of Kilaga Springs Road generally between elevations of around 500 to 650 foot mean sea level. This general area is shown in Figure 1. A detailed siting evaluation is being conducted to select the proposed site for the WTP within this area. Treated water transmission pipelines will extend from the WTP to the City boundary through unincorporated lands within Placer County and the NID service area. In addition to the transmission pipeline, land owners will have an opportunity to extend treated water service to their property through various NID policies and programs. These treated water line extensions would create an additional service area within the unincorporated area that is within the NID service area and outside of the City SOI. This area is referred to herein as the "Soft Service Area" (SSA) and is shown in Figure 1.

The SSA represents the area anticipated to be served by the proposed NID WTP within a reasonably foreseeable project horizon. It should be noted that the SSA may change over time. For example: the SSA may expand even further east, above the 400 foot elevation, through the installation of new pump zones.

In contrast to the SSA described above, the NID service area exterior boundary and the proposed City SOI are considered fixed or "hard" boundaries. These boundaries will not change for the purpose of this study.

The interest in receiving treated water within the SSA is unknown at this time and will depend on allowable land uses in the area, adequacy of the groundwater supply for private wells, customer requests, and the economics of extending treated water service. For the purposes of this study, only properties at or below the 400 foot elevation have been included in the potential SSA.

Treated water distribution system extensions will ultimately define the unincorporated SSA and will be driven by the desire or need for treated water from the new WTP and the cost of extending service as governed by NID's policies and programs. For the purposes of this study, it is assumed that those system extensions will eventually take place within the life expectancy of the project.

### 2.0 LAND USE

The objective of this study is to estimate water demands for the potential NID service area to be supplied by the new WTP. Water demand projections are based on water demand factors for various land uses anticipated by the City and Placer County within their respective jurisdictions. Land uses within the potential service area are discussed and quantified in this section.

### 2.1 CITY OF LINCOLN

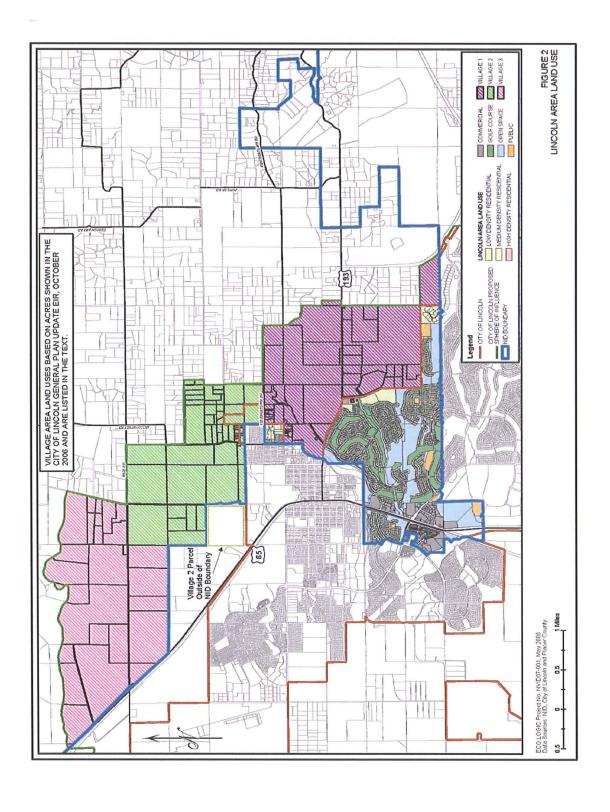
Land use for the City of Lincoln falls into two general categories: developed and undeveloped, all within the NID service area. In general, the developed areas lie within the existing City limits and land undeveloped for urban uses lie outside the existing City limits but within the proposed City SOI.

### **Developed Areas**

Areas in the City limits within the NID service area that are already developed and currently receiving treated water service per the PCWA/NID/City temporary agreement previously discussed are shown in Figure 2. Those areas include:

- Portions of the Lincoln Crossing development west of Highway 65
- Portions of the Twelve Bridges development east of Highway 65 and south of Highway 193.
- A small developed area in the northeastern portion of the City near Virginiatown Road.

Specific plans have been approved and City parcel maps completed for the above areas. Most of the anticipated area development is in place. Actual unit counts were used for the developed areas. Table 1 lists the areas of various existing land uses in combination with land uses allowed under City zoning for those smaller areas not yet developed.



Nevada Irrigation District Water Supply Project NVID07-001

Table 1

City of Lincoln Developed Land Use Areas (a,b)

	Existing Development Acres	Number of Residential Units (c, d)
Residential		
12 Bridges	597	2,920
Lincoln Crossing	83	454
Other Areas	33	83
Total	713	3,457
Commercial		
12 Bridges	108	:=
Lincoln Crossing	45	·
Total	153	-
Open Space		
12 Bridges	400	-
Lincoln Crossing	62	-
Total	462	-
Public		
12 Bridges	49	-
Lincoln Crossing	2	{ <b>-</b> :
Total	51	-
Major Roads (acres) (5% of Total Acreage)		
12 Bridges	63	-
Lincoln Crossing	10	-
Total	73	-
Total Developed Area	1,452	3,457

- (a) Includes lands within the NID service area only.
- (b) All acreages and units are derived from the City Zoning and Parcel Map GIS Database (2007).
- (c) Units represent the number of existing service connections within each area.
- (d) Water demand estimates for Commercial, Open Space, Public, and Infrastructure Right of Way are calculated based on area, therefore no residential units are assigned for these categories.

### **Undeveloped Areas**

The lands undeveloped for urban uses which lie within the NID service area, but within the City SOI are referred to as Villages 1, 2, and 3 in the City of Lincoln March 2008 General Plan Update. These villages are shown in Figure 2. All of these villages lie within the NID service area with the exception of a small portion (12 percent) of Village 2, also shown in Figure 2. This portion of Village 2 will not be served by the proposed NID WTP and therefore has been excluded for the purpose of this study. The land uses proposed in the General Plan and associated acreages within these villages are summarized in Table 2.

Table 2
City Undeveloped Land Use Areas<sup>(a)</sup>
(Villages 1, 2, and 3)

	Undeveloped Areas (b, c) Acres	Number of Residential Units (b, c, d)
Residential		
Village 1	840	3,507
Village 2	748	3,409
Village 3	970	4,841
Total	2,558	11,757
Commercial		
Village 1	20	-
Village 2	9	-
Village 3	70	-
Total	99	-
Open Space		
Village 1	600	-
Village 2	502	-
Village 3	690	-
Total	1,792	-
Public		
Village 1	50	-
Village 2	0	-
Village 3	0	-
Total	50	-
Infrastructure Right of Way		
Village 1	270	-
Village 2	220	-
Village 3	310	-
Total	800	-
Total Undeveloped Area	5,299	11,757

- (a) Includes lands within the NID service area only.
- (b) From City of Lincoln March 2008 General Plan Update
- (c) Village 2 acreages and units proportionally reduced by 12 percent. See explanation in text above.
- (d) Water demand estimates for Commercial, Open Space, Public, and Infrastructure Right of Way are calculated based on area, therefore no residential units are assigned for these categories.

Another factor that will influence the water demand projections within the City of Lincoln is the final layout of General Plan Villages 1, 2 and 3. To date, land uses within the villages have been laid out conceptually, identifying the various uses including environmentally constrained areas, open space, roadways, commercial and residential development, etc. Development within these

areas must comply with approved specific plans. The final layout in the approved specific plans may differ from the conceptual layout in the new General Plan and would affect the final water demand accordingly. Specific plans have not yet been developed: therefore, this study will rely on the land uses identified in the City's March 2008 General Plan.

### 2.2 UNINCORPORATED AREA

Land uses within the unincorporated portion of the NID service area for the proposed WTP, defined above as the SSA, were developed using parcel base mapping and land uses provided by Placer County Planning Department. Land uses are based on a GIS data base provided by Placer County Planning Department (July 2007) that represent land uses from the 1994 Placer County General Plan. General Plan land uses within the unincorporated area are shown in Figure 3. Based on the Placer County General Plan there are no non-residential land uses within the unincorporated SSA. The total acreage of the SSA is approximately 25,188 acres. Current land uses within the SSA include large parcels with allowable densities of 0.0125 to 1 units per acre (1 to 80 acre/unit minimums). The units per parcel were rounded up to the nearest integer to be conservative.

When NID was expanded in 1926, to include portions of Placer County, some land owners opted not to join the expanded NID service area. As a result there are a number of interior exclusions within the SSA accounting for approximately 3,420 acres, or 13.6 percent of the total 25,188 SSA acres. These interior exclusion parcels have the option to join the NID at anytime and, therefore, have been included as part of the SSA when calculating the number of potential units. The exclusion parcels within the NID service area are identified in Figure 3.

The area and number of units for the SSA are listed in Table 3. Placer County Community Development Resources Agency (CDRA) was contacted regarding future plans for modifying the land uses in the area. They indicated that there are currently no plans to modify the land uses within the SSA. CDRA will be asked to provide comments on this technical memorandum. Their comments, if any, will be addressed in the preliminary design report.

Table 3
Unincorporated Area Land Use Areas (a)

	Total Area within SSA Acres	Potential Number of Units
Residential (b)	25,188	4,738

<sup>(</sup>a) Based on land use information provided by Placer County (July 2007), based on the 1994 Placer County General Plan.

<sup>(</sup>b) All land uses within the SSA are identified either as Agricultural/Timberland (with 10 to 80 acre minimum lot areas), or Rural Residential (with 1 to 10 acre minimum lot areas). As such all units reported are assumed to be residential.

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### 3.0 WATER DEMANDS

Water demand projections are based on water demand factors and peaking factors coupled with land use. Three categories of water demand projections are required: 1) the maximum daily demand in million gallons per day (MGal/d) which is used to size the WTP and other project components, 2) the peak hour demand in gallons per minute (gpm) which is used to size the treated water transmission pipelines between the WTP and the City, and 3) the total annual consumption in acre-feet (AF) which is used to evaluate the impact on source water supplies. All three of these categories are derived from the estimated average annual demand, expressed in gallons per day (gpd), per unit or per acre, depending on land use classifications. The factors and the associated water demands based on land uses are discussed below.

### 3.1 WATER DEMAND AND PEAKING FACTORS

Average amount of water used per day over a year's time, or average annual day demand expressed in gallons per day (gpd) for the various types of land uses (residential, commercial, open space, etc.) is the basis for estimating water demands. Coupling these average annual day demand factors with peaking factors enables estimates of maximum day and peak hour water usage, and the total yearly water demand for various types of land use. Average annual day demands and peaking factors used in this study differ between water purveyors and depend on a number of factors such as demographics, cost of water, type of development, etc. These differences are reflected in the following tables.

Average annual day demands and peaking factors from the City General Plan dated March 2008 were used to estimate water demands for areas of the proposed City SOI within the NID service area. See Tables 4 and 5.

Table 4

City of Lincoln Residential Water Demand and Peaking Factors (a)

Land Use	Average Annual Day Demand (gpd/unit)	Average Day to Maximum Day/Peak Hour Peaking Factors	Maximum Day Demand (gpd/unit)	Peak Hour Demand (gpm/unit)
Rural Residential	1,092	2.5/4.0	2,730	3.0
Country Estate	1,092	2.5/4.0	2,730	3.0
Low Density	460	2.5/4.0	1,150	1.3
Medium Density	460	2.5/4.0	1,150	1.3
High Density	260	2.5/4.0	650	0.7

 <sup>(</sup>a) Demand and peaking factors for the City of Lincoln from Water System Constraints Analysis, March 2006 – C. Frank Bradham.

Table 5
City of Lincoln Non-Residential Water Demand and Peaking Factors (a)

Land Use	% of Acreage for Application of Demand Factor	Average Annual Day Demand (gpd/acre)	Average Day to Maximum Day/Peak Hour Peaking Factors	Maximum Day Demand (gpd/acre)	Peak Hour Demand (gpm/unit)
Commercial/Industrial	100%	2,500	2.5/4.0	6,250	6.9
Public Facilities	100%	5,200	2.5/4.0	13,000	14.4
Open Space <sup>(b)</sup>	1%	5,200	2.5/4.0	13,000	14.4
Roads <sup>(c)</sup>	10%	5,200	2.5/4.0	13,000	14.4

- (a) Demand and peaking factors for the City of Lincoln from Water System Constraints Analysis, March 2006 C. Frank Bradham.
- (b) Assume 1 percent of open space area to have potable water needs such as drinking and restrooms.
- (c) Assume 10 percent of total road area to be irrigated with treated water.

Average annual day demands and peaking factors for the SSA were used to project estimated water demands and are based on the NID "Treated Water Master Plan Assumptions" dated March 12, 1997 with the exception of maximum to average day ratio, which was increased from 2.5 to 3.0. A larger ratio is based on the large size of the parcels in the area and the likelihood that there will be a potential to irrigate a larger area immediately around the residence than would be expected for smaller lots in urban settings. In addition, the development efficiency of 80 percent used in the NID assumptions were increased to 100 percent based on the much longer planning horizon associated with developing facilities for a new treated water service area vs. the 20-year NID Treated Water Master Plan Assumption. Average annual day water demands and peaking factors for the SSA are summarized in Table 6.

Table 6
Unincorporated Placer County Residential Water Demand and Peaking Factors <sup>(a)</sup>

Land Use	Average Annual Day Demand (gpd/unit) (b)	Average Day to Maximum Day/Peak Hour Peaking Factors	Maximum Day Demand (gpd/unit)	Peak Hour Demand (gpm/unit)
Low Density Residential	864	3.0/6.0	2,592	3.6
Medium Density Residential	576	3.0/6.0	1,728	2.4

- (a) Development efficiency was assumed to be 100 percent.
- (b) Demand factors for unincorporated Placer County based on the NID Treated Water Master Plan Update, 1997 except for an increase in the development efficiency to 100 percent and the maximum day to average day peaking factor (2.5 to 3.0) as described in text.

### 3.2 WATER DEMAND PROJECTIONS

Water demands were calculated based on the approved land uses within the potential service areas, coupled with the average annual day water demand factors and peaking factors associated with the various land uses (all as discussed in previous sections). Average day demands and

maximum daily demands, as well as the annual average demand within each of the potential service areas are summarized in Table 7.

Water demand estimates developed for this study are planning level estimates. These estimates will be used for project pre-design and for development of a project description for CEQA purposes. A concerted effort has been made to ensure that the estimates are reasonably conservative.

Based on the current analysis at build out, the maximum day demand for treated water within the potential service area is estimated to be 39.3 MGal/d, with an average annual day demand of approximately 15.7 Mgal/d.

The maximum peak hour demand for the potential service area is estimated at 41,600 gpm (used for designing treated water transmission pipelines) and represents the SSA and the City demand. Peak hour demand entering the City's system through the proposed metering station is estimated to be 30,200 gpm; the estimated peak hour demand within the SSA is 11,400 gpm.

The estimated annual demand at build out within the proposed City SOI is approximately 11,790 AF/yr. Ten percent unaccounted for water is included for the overall City of Lincoln demand as provided in the Framework for Development of a Water Treatment Facility MOU between NID and the City, dated April 25, 2007 which is 1,179 AF/yr. The estimated annual demand for the SSA is approximately 3,786 AF/yr.

The total estimated annual demand for all areas, including NID areas within the Lincoln SOI and NID areas outside of the Lincoln SOI, within the potential service area is approximately 16,755 AF/yr, which includes the unaccounted water. Roughly 77 percent of the estimated demand is expected to occur within the proposed City SOI.

Various NID policies and programs provide for an extension of treated water within its service area. Unless there is a decrease in the utilization of groundwater or an increased development density within the unincorporated SSA as a result of rezoning, customer interest in extending the treated water into these developed areas will vary. As such, the projected water demands estimated for the unincorporated SSA portion of the potential service area may not be fully realized, but will be accounted for in this study for the planning and design of the water treatment facilities.

l able / Estimate of Water Demands within Study Area<sup>(a)</sup>

		Residenti	Residential Demand		Non-Re	Non-Residential Demand <sup>(c)</sup>	ıand <sup>(c)</sup>		Total	
	Units	Avg. Day, MGal/d	Max. Day MGal/d	Annual AF/yr	Avg. Day MGal/d	Max. Day, MGal/d	Annual AF/yr	Avg. Day MGal/d	Max. Day MGal/d	Annual AF/yr
City of Lincoln										
Twelve Bridges	2,920	1.3	3.3	1,472	6.0	2.1	666	2.2	5.4	2,471
Lincoln Crossing	454	0.2	0.5	234	0.1	0.3	150	0.3	8.0	384
Village 1	3,507	2.0	5.0	2,251	0.5	1.2	539	2.5	6.2	2,790
Village 2	3,409	1.7	4.2	1,889	0.2	0.4	182	1.9	4.6	2,071
Village 3	4,841	2.4	5.9	2,663	0.4	6.0	417	2.8	8.9	3,080
Additional Development Area (b)	83	0.05	0.1	54	0.8	2.1	940	0.85	2.2	994
Total City of Lincoln <sup>(d)</sup>	15,214	7.7	19	8,563	2.9	7	3,227	10.55	26	11,790 <sup>(b)</sup>
Soft Service Area (SSA)	4,738	4.1	12.3	3,786	0.0	0.0	0.0	4.1	12.3	3,786
Unaccounted for Water (e)	ı		i	-	1	1	1	1.1	1.1	1,179
Total for Study Area	19,952	11.7	31.3	12,349	2.9	7.0	3,227	15.7	39.3	16,755

(a) Limited to area within the NID service area.

An additional demand of 0.8 MGD was added for non-residential flow to accommodate potential commercial/industrial development based on inquiries from developers within the City of Lincoln. (q)

Placer County General Plan does not provide for non-residential uses within the SSA; therefore, this category for the Soft Service Area is zero. <u>ပ</u> It should be noted that total annual demand estimated for the City (11,790 AF) is unchanged from that estimated in the August 2005 Site Study and acknowledged in the August 2007 Water Facilities/Planning Phase Agreement between the City and NID. **©** 

Ten percent unaccounted for water is included for the overall City of Lincoln demand as provided in the Framework for Development of a Water Treatment Facility MOU between NID and the City, dated April 25, 2007. Unaccounted for water for the SSA is included in the demand factors and overall estimated water demand. (e)

Nevada Irrigation District Water Supply Project NVID07-001

### 4.0 RECOMMENDATIONS

Based on the results of this estimate of water demands for the Nevada Irrigation District Regional Water Supply Project the following is recommended:

- 1. Determine NID water resources needed to accommodate a water demand of 16,755 acre feet per year of treated water in the Lincoln SOI and NID service area.
- 2. Determine the raw water offset resulting from the conversion of agricultural lands to urban uses within the SOI area.
- 3. Base pre-design of the raw water transmission pipelines, raw water storage, and water treatment plant (including treated water storage) to provide at least 40 Mgal/d maximum day demand at the WTP site.
- 4. Pre-design the treated water transmission pipelines to deliver at least 41,600 gpm peak hour demand into the transmission main leaving the water treatment plant. Assess transmission pipeline capacity accounting for demands within the SSA prior to entering the City, and consider reducing the pipeline diameter as required capacity decreases.
- 5. Pre-design the hydraulic control/metering station at the edge of the proposed City SOI to deliver at least 30,200 gpm peak hour demand.
- 6. Increase the size of the raw and treated transmission pipelines and storage facilities to accommodate NID master planning and other planned strategic facility uses.
- 7. Re-evaluate all estimated water demands and facility capacities during final design of project components.

Appendix D-1	Western Placer County Groundwater Management Plan











# WESTERN PLACER COUNTY GROUNDWATER **MANAGEMENT PLAN**







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# **Abbreviations and Acronyms**

AB Assembly Bill

AEG Applied Engineering and Geology

AF acre-feet

AFB Air Force Base

ARB American River Basin

ARPS American River Pump Station

ARWRI American River Water Resources Investigation

ASR Aquifer Storage and Recovery
BMO Basin Management Objective

CAW California American Water Company

cfs cubic-feet per second

CGS California Geological Survey

COC constituents of concern

CPS Comprehensive Planning Study

CVP Central Valley Project

CVRWQCB Central Valley Regional Water Quality Control Board

DCW Diamond Creek Well

DHS Department of Health Services

DMS Data Management System

DTSC Department of Toxic Substances Control

DU dwelling units

DWR California Department of Water Resources

DWSAP Drinking Water Source Assessment and Protection

EMD Environmental Management Department

EPA Environmental Protection Agency
FRWA Freeport Regional Water Authority

GAMA National Groundwater Ambient Monitoring Assessment

GMP Groundwater Management Plan

gpd/ft gallons per day per foot gpm gallons per minute

GPS Global Positioning System

IRWMP Integrated Regional Water Management Plan

IWRP Integrated Water Resources Plan

JPA joint powers authority

Lincoln City of Lincoln

LSCE Luhdorff & Scalmanini Consulting Engineers

LUSTs leaking underground storage tanks

M&I Municipal and industrial

MCL Maximum Contaminant Level

MFP Middle Fork Project

MOU memorandum of understanding

NARIGSM North American River Integrated Groundwater Surface Water Model

NCMWC Natomas Central Mutual Water Company

NGS National Geodetic Survey
NID Nevada Irrigation District

PBE Physical Barrier Effectiveness

PCAs Potential Contaminating Activities

PCE tetrachloroethene

PCWA Placer County Water Agency

PG&E Pacific Gas and Electric

PNWA Placer Nevada Wastewater Authority

RAP Remedial Action Plan

Roseville City of Roseville

ROWD Report of Waste Discharge
RWA Regional Water Authority

SB Senate Bill

SCEP Strategic Capital Expenditure Plan
SCWA Sacramento County Water Agency
SGA Sacramento Groundwater Authority

SJWD San Juan Water District
SKS Saracino, Kirby, and Snow

SMWA Sacramento Metropolitan Water Authority

SOI sphere of influence

SOP Standard Operating Procedure
SSWD South Sutter Water District

Sub-Basin North American River Groundwater Sub-Basin

Successor Effort Water Forum Successor Effort
SVOCs semi-volatile organic compounds
SWRCB State Water Resources Control Board

TCE trichloroethylene

TDS total dissolved solids

THM trihalomethane

TPH total petroleum hydrocarbons
TRC Technical Review Committee
USGS United States Geological Survey
UWMP Urban Water Management Plan
VOCs volatile organic compounds

WF Water Forum

WFA Water Forum Agreement

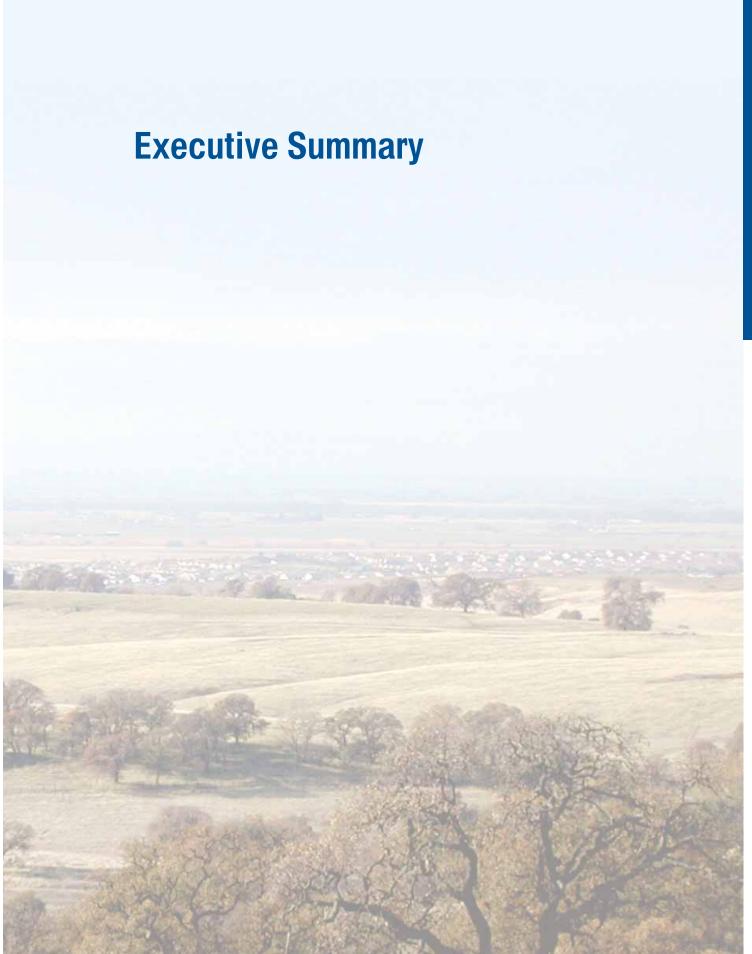
WPCGMP Western Placer County Groundwater Management Plan
WPWMALS Western Placer Waste Management Authority Landfill Site

WSIP Water Systems Infrastructure Plan

WTP Water Treatment Plant

WWTP Wastewater Treatment Plant

WWTRF Wastewater Treatment and Recycling Facility



#### THE WESTERN PLACER COUNTY GROUNDWATER MANAGEMENT PLAN

# **Executive Summary**

#### **OVERVIEW**

The Western Placer County Groundwater Management Plan (WPCGMP) is a planning tool to assist the City of Roseville, the City of Lincoln, Placer County Water Agency (PCWA), and the California American Water Company (CAW) in an effort to maintain a safe, sustainable and high-quality groundwater resource within a zone of the North American River Groundwater Sub-basin (Sub-basin). These plan participants have identified a range of specific goals, objectives, and actions that collectively provide a "road map" for future implementation of the WPCGMP by a governing

body. As a "living document," the WPCGMP is intended to be periodically updated and refined to reflect progress made in achieving the WPCGMP's objectives and as conditions change in the region. The document outlines a series of required, recommended, and voluntary actions that will promote on-going modification of the WPCGMP's depth and content.

Lastly, a Groundwater Management Plan (GMP) is a required "baseline" document for agencies seeking grant funds from the State of California. Moreover, state agencies that award grants on a competitive basis often



give preference to GMPs that have been adopted and implemented by multiple agencies.

#### WPCGMP GOAL AND PURPOSE

The goal of the WPCGMP is to maintain the quality and ensure the long-term availability of groundwater to meet backup, emergency, and peak demands without adversely affecting other groundwater uses within the WPCGMP area. To meet that goal, the purpose of this WPCGMP is to serve as the initial framework for coordinating the many independent management activities into a cohesive set of management objectives and related actions necessary to meet those objectives.

#### **GMP REQUIREMENTS**

The California Groundwater Management Act and Assembly Bill 3030 and Senate Bill 1938 guide the preparation of GMPs and contain numerous technical requirements and provisions which are briefly summarized as follows:

- A GMP contains an inventory of water supplies and describes water uses with a given region.
- A GMP establishes groundwater Basin Management Objectives (BMOs) that are designed to protect and enhance the groundwater basin.
- A GMP identifies monitoring and management programs that ensure the BMOs are being met.
- The GMP outlines a stakeholder involvement and public information plan for the groundwater basin.



#### WHY PREPARE THE WPCGMP?

The WPCGMP is being prepared primarily to position basin partners for future groundwater planning activities. These activities are summarized as follows:

- A GMP develops a framework or baseline on which to build future planning efforts.
- Preparing a GMP is a good planning procedure for managing a groundwater basin.
- A GMP is a prerequisite in applying for State grant funding opportunities.

#### **WPCGMP PARTNERS**

The preparation of the WPCGMP is a joint effort by the Cities of Roseville and Lincoln, PCWA, and CAW. Placer County has been an active participant in the GMP's development; however, the County has not formally joined the WPCGMP as a full partner. In addition, the California Department of Water Resources (DWR) has been an active participant in development of the WPCGMP. Through adoption of the WPCGMP, these plan participants are building upon previous groundwater management efforts in the basin.

#### STAKEHOLDER INVOLVEMENT

Plan participants have conducted a series of briefings and public meetings to inform and involve stakeholders in the WPCGMP. Stakeholder groups briefed on the WPCGMP were: Roseville Public Utility Commission; Lincoln City Council; Placer County Water Agency Board of Directors; Sacramento Groundwater Authority and its member agencies; and the Water and Environment Caucuses of the Water Forum.



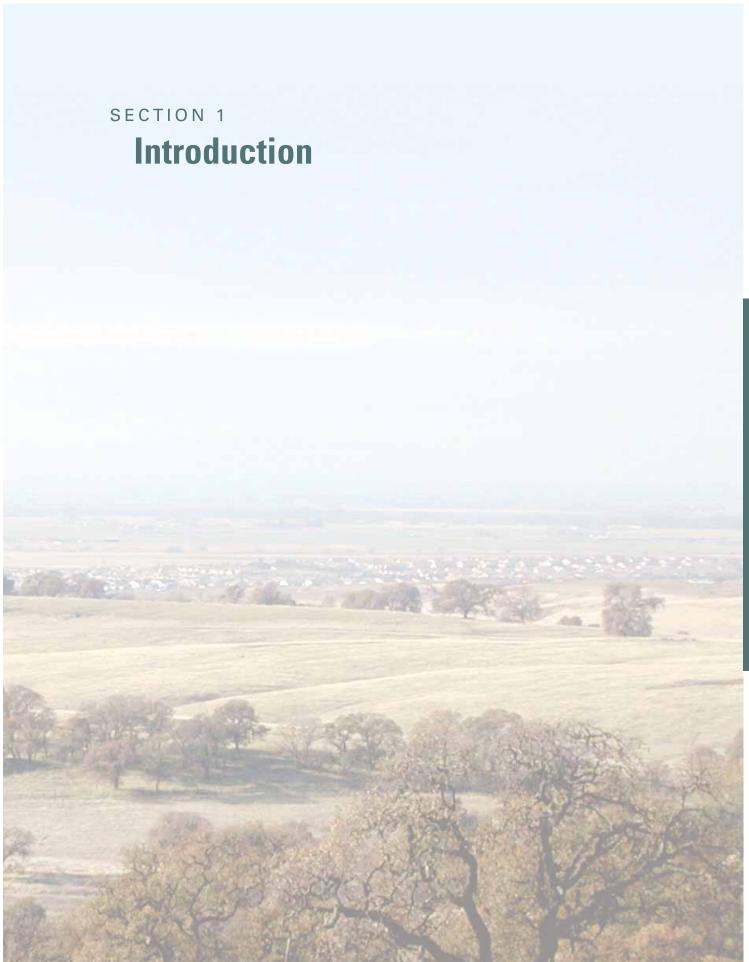


Plan participants have provided presentations and/or informational materials to adjacent agencies and organizations including the South Sutter Water District, Natomas Central Mutual Water Company, Nevada Irrigation District, San Juan Water District, City of Rocklin, City of Citrus Heights, Rio Linda/Elverta Community Water District, Yuba County Water Agency, Sacramento Suburban Water District, and Camp Far West Water District.

A public open house to present elements and objectives of the WPCGMP was held June 14, 2007, at the City of Lincoln's McBean Pavilion. A database of approximately 1,200 individuals and organizations was utilized to promote the open house via a direct mail invitation. Invitees included regional water purveyors, businesses, developers, environmentalists, local government agencies, growers, ranchers, and all private well operators within the unincorporated portion of the WPCGMP study area. In support of these outreach activities, plan partners have maintained a project website at www.wpcgmp.org.

#### **FUTURE GOVERNANCE STRUCTURE**

Following adoption of the WPCGMP by all plan partners, an implementation agreement will be established. As part of this implementation agreement, a designated governance body will be appointed by the plan participants and tasked to oversee and facilitate the implementation of management actions intended to meet the established BMOs. The governance body's work and costs will be divided among the four plan participants.



#### SECTION 1

# Introduction

The City of Roseville (Roseville), the City of Lincoln (Lincoln), Placer County Water Agency (PCWA), and California American Water Company (CAW) have cooperatively developed this Western Placer County Groundwater Management Plan (WPCGMP) as detailed in this and subsequent sections. These entities, collectively referred to as the WPCGMP plan participants, joined to develop this groundwater management plan (GMP) because they all share some level of interest in the North American River Groundwater Sub-basin (Sub-basin). A component of the Sacramento Valley Groundwater Basin, the Sub-basin is roughly bounded by the American River to the south, the Sierra Nevada foothills to the east, the Bear River to the north, and the Sacramento River to the west. The WPCGMP area includes the Sub-Basin's eastern edge, Sacramento County to the south, the western edge of PCWA's service area, and Bear River to the north. Although the participants are not the only users of the Sub-basin, their political boundaries do cover the majority of the area where Placer County overlies the Sub-basin, as illustrated in Figure 1-1.

#### 1.1 REPORT ORGANIZATION

This document was prepared in accordance with the California Groundwater Management Act and Assembly Bill 3030 (AB3030) and Senate Bill 1938 (SB 1938), and includes the following sections;

**Section 1. Introduction.** This section provides the geographic setting, city and agency background, and summarizes other water resource management efforts implemented by entities located within and immediately adjacent to the WPCGMP area.

**Section 2. Water Resources Setting.** Prior to managing a basin, available water supplies must be identified and quantified. This section presents information on the availability of different water supplies and how they could be used within the WPCGMP area. This section also provides a description of the groundwater basin highlighting the unique hydrogeologic setting, an understanding of water quality issues, and a description of groundwater and surface water infrastructure currently in-place within the WPCGMP area.

**Section 3. Management Plan Elements.** This section identifies the five plan components (Stakeholder Involvement, Monitoring Program, Groundwater Resource Protection, Groundwater Sustainability, and Planning Integration) that constitute a GMP. An important aspect of this section is the identification of Basin Management Objectives (BMOs) and the actions necessary for BMO implementation.

**Section 4. Plan Implementation.** This section provides a schedule for implementing the BMOs, plan components, and actions; presents reporting criteria; and provides a description of the governance body and financing necessary to implement the WPCGMP.



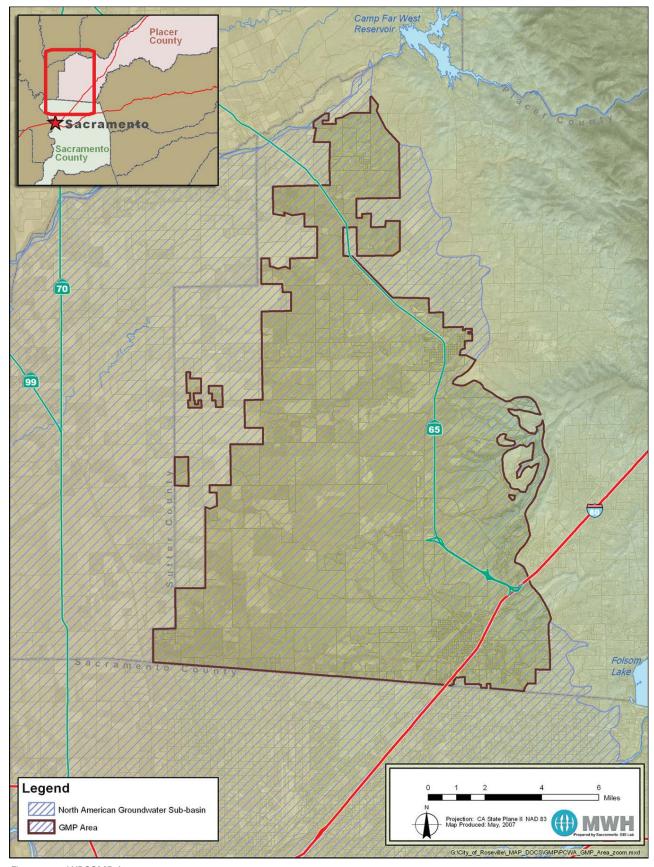


Figure 1-1 – WPCGMP Area

#### 1.2 PURPOSE AND GOALS OF THE WPCGMP

The goal of the WPCGMP is to maintain the quality and ensure the long-term availability of groundwater to meet backup, emergency, and peak demands without adversely affecting other groundwater uses within the WPCGMP area. To meet that goal, the purpose of this WPCGMP is to serve as the initial framework for coordinating the many separate management activities into a cohesive set of BMOs and related implementation actions.

#### 1.3 BACKGROUND

The following subsection presents background information on each plan participant. For reference, Figure 1-2 illustrates the extents of each participant's service area and/or city limits.

#### 1.3.1 Roseville

Established in 1909, Roseville is an incorporated city located approximately 16 miles northeast of Sacra-



mento, California in Placer County. It encompasses approximately 36 square miles with a population of approximately 104,000 people (Figure 1-1).

Roseville is responsible for providing all water (potable water service including treatment, water distribution and water conservation), wastewater (wastewater collection and treatment), recycled water (irrigation), and stormwater (protecting the water quality of Roseville's creeks), and other utility services to Roseville's residents, businesses and schools in its service area.

Currently, Roseville is experiencing a significantly higher rate of population growth than the national average. This growth has caused new urbanization in the north and northwest portions of the city. Historically, Roseville's water supply has come solely from

Folsom Lake, which is treated at Roseville's Water Treatment Plant (WTP). In order to provide water for backup demands, Roseville currently maintains four municipal supply wells to augment surface water supplies during daily and peak demand periods. To further maintain water reliability. Roseville is currently evaluating the feasibility of conjunctive use programs including direct groundwater recharge through Aquifer Storage and Recovery (ASR) and the use of spreading



City of Roseville ASR well

basins and passive groundwater recharge through in-lieu surface water delivery.

#### 1.3.2 Lincoln

Lincoln is an incorporated city located in western Placer County and has a population of approximately 35,000 people as of December 2005. Lincoln's



city limits for the proposed 2006 General Plan Update are shown on Figure 1-2. Similar to Roseville, Lincoln is experiencing a high rate of population growth causing urbanization within Lincoln's boundaries. Lincoln primarily relies on PCWA to meet its treated water supply need. To accommodate dry-year, emergency, and daily peak demands, Lincoln owns and operates several municipal water supply wells. Lincoln also has a conjunctive use program, which includes the use of recycled water from its Wastewater Treatment and Recycling Facility (WWTRF), groundwater and raw surface water supplies, in addition to the treated potable supplies from PCWA.

#### 1.3.3 PCWA

Placer County Water Agency was created in 1957 through approval of "The Placer



County Water Agency Act" by the California State Legislature for the purpose of developing and operating major water facilities in Placer County. PCWA is self-governed by an independently elected five-member Board of Directors and is under administrative direction of a general manager. The boundaries of PCWA generally coincide with the boundaries of Placer County.

PCWA carries out a broad range of responsibilities including water resource planning and management, retail and wholesale supply of irrigation water and drinking water, and production of hydroelectric energy.

PCWA is working toward obtaining a better understanding of groundwater in western Placer County through the implementation of different groundwater planning projects. At present, self-supplied and agricultural use of groundwater in the region is extensive. PCWA wishes to understand the magnitude of groundwater use and replenishment as it considers future water supply planning opportunities that exist in its primary surface water system.

The PCWA water system was established in 1968. PCWA supplies wholesale and retail water to a variety of customers including residential, commercial, industrial, and agriculture. A significant amount of raw water irrigates pastures, orchards, rice fields, farms, ranches, golf courses, and other uses. PCWA retails treated water to customers residing in the Placer County communities of Colfax, Auburn, Loomis, Rocklin, small portions of Roseville, and in the vast unincorporated areas of western Placer County. PCWA also wholesales treated water to Lincoln and several smaller special districts who then retail water to their customers. PCWA provides raw

water to Roseville, San Juan Water District, and Sacramento Suburban Water District on a contract basis. These agencies provide their own treatment and then retail the water to their customers.

As described below, and summarized in **Table 1-1**, PCWA has established five retail service zones within Placer County (four of which are illustrated on **Figure 1-2**):

- Zone 1 was created in 1968 for the purpose of financing the purchase of Pacific Gas and Electric's (PG&E) Lower Drum Division Water System. This system provided water service to the communities of Auburn, Bowman, Ophir, Newcastle, Penryn, Loomis, Rocklin, and Lincoln. It has four WTPs and one groundwater well and associated storage and distribution systems.
  - Zone 1 encompasses approximately 125 square miles. Today, Zone 1 includes territory under the land use authorities of Auburn, Rocklin, Lincoln, a portion of Roseville, Loomis, and Placer County. Zone 1 is separated into Upper Zone 1 and Lower Zone 1 to delineate the higher elevation service areas of Auburn, Bowman, and Ophir from the remaining lower elevation areas.
- Zone 2 was created in 1979 and provides retail water service to a small residential development of 47 units located in an unincorporated area southwest of Roseville. Formerly supplied by groundwater, the system was converted to surface water in 2004. Zone 2 is under the land use authority of Placer County.
- Zone 3 is a water system acquired from PG&E in 1984 that serves Colfax and portions of Placer County along the Interstate 80 corridor extending from Bowman to Alta. This zone utilizes surface water and has four water treatment plants.



- Zone 4 was created in 1996 and is located in the unincorporated Martis Valley portion of eastern Placer County. Zone 4 is served entirely by groundwater.
- Zone 5 was created in 1999 and assumed the boundaries of Placer County Zone 29. It was created to reduce reliance on groundwater supplies by providing surface water for commercial agriculture in the western-most section of Placer County. Zone 5 is served entirely by raw surface water supplies.

# 1.3.4 CAW California American Water Company



is a wholly-owned subsidiary of American Water, a provider of water services throughout North America. Within the WPCGMP area, CAW operates its West Placer Water System (WPWS) – an area with approximately 1,100 customer connections in 2005 (see **Figure 1-2**) – under a franchise agreement with the County of Placer. The WPWS is one of 10 service areas of CAW's Sacramento District.

Table 1-1. PCWA Retail Service Zones

PCWA Retail Service Zones	Locations	Water Service Provided
Zone 1 [1]	Auburn to Newcastle, Lincoln, Loomis, Rocklin, Granite Bay and Roseville, plus unincorporated areas	Treated and raw water
Zone 2	A small residential area of 46 customers (Bianchi Estates), southwest of Roseville	Treated water
Zone 3	Applegate, Colfax, Alta, and Monte Vista	Treated and raw water
Zone 4	Water from three wells is used to serve the Lahontan, Timilick, Hopkins Ranch, and Martis Camp developments in the Martis Valley	Treated water
Zone 5 [2]	Irrigation water for commercial agriculture in far western Placer County	Raw water

<sup>&</sup>lt;sup>[1]</sup> Zone 1 is separated into Upper Zone 1 and Lower Zone 1 based on the system configuration. Upper Zone 1 is solely met by PG&E water while Lower Zone 1 also receives Middle Fork Project (MFP) water.

<sup>&</sup>lt;sup>[2]</sup> Zone 5 was created in 1999 to reduce reliance on groundwater supplies by providing surface water for commercial agriculture in the western-most section of Placer County.

11 x 17 service area map goes here

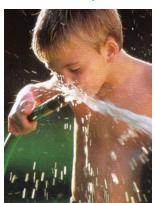
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Recent residential developments in WPWS are required to use surface water exclusively. The water is provided under a wholesale agreement with PCWA and delivered via a wheeling agreement with the City of Roseville.

CAW intends to continue serving WPWS area customers predominately with PCWA-supplied surface water. However, PCWA and CAW intend to incorporate the conjunctive use of groundwater as needed to achieve the highest levels of water supply reliability.

#### 1.3.5 Other Adjacent Entities



The following subsection provides background information on other local and regional entities immediately adjacent or within the WPCGMP area including Placer County, South Sutter Water District, Natomas Central Mutual Water Company, the Sacramento Groundwater Authority (SGA), and the Regional Water Authority (RWA), (**Figure 1-3**). These agencies, like the WPCGMP participants,

each have some level of interest in the North American groundwater basin, and therefore are likely to have some interest in its management.

#### 1.3.5.1 Placer County

Placer County serves a population of over 300,000 from its border with Sacramento County to the Nevada state line. County communities include Roseville, Lincoln, Rocklin, Loomis, Auburn, Foresthill, Colfax, Tahoe City, and Kings Beach. Placer County, as an



entity, does not provide water service to customers, but provides services including Agricultural and Environmental permitting. In addition, Placer County government serves as the land use authority for unincorporated areas.

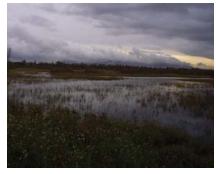
# 1.3.5.2 Natomas Central Mutual Water Company (NCMWC)

NCMWC is located in northwestern Sacramento County and southern Sutter County, adjacent to the Sacramento River (Figure 1-3). It provides irrigation water to approximately 280 members/shareholders for agricultural use. NCMWC has water rights and contracts to Sacramento River water. Surface water is supplemented with groundwater from privately owned wells.

#### 1.3.5.3 South Sutter Water District (SSWD)

SSWD is located in southern Sutter and western Placer counties, with the Bear River as the northern boundary and stretching

southwest between Highway 65 and Highway 70 to Pleasant Grove and Curry Creeks (Figure 1-3). SSWD was formed in 1954 to develop, store, and distribute surface water supplies to supplement ground-



water supplies as needed. SSWD is considered a "supplemental" water district because it does not provide full service to landowners. Instead, it allocates supplemental surface supplies according to acreage of land owned. SSWD covers 57,012 acres with approximately 82 percent in rice production. Most of the SSWD's customers are agriculture-based and utilize private wells to obtain the majority of their water supplies.

#### 1.3.5.4 Nevada Irrigation District (NID)

NID is an independent public agency governed by an elected board that supplies nearly 25,000 homes, farms and businesses in Nevada and Placer counties in the foothills of Northern California's Sierra Nevada Mountains. NID collects water from the mountain snowpack and stores it in a system of 10 reservoirs. As water flows to customers in the foothills, it is used to generate clean hydroelectric energy and to provide public recreational opportunities. NID supplies both treated drinking water and irrigation water.

#### 1.3.5.5 San Juan Water District (SJWD)

SJWD is a community services district created by a vote of the citizens in 1954. It wholesales water to Citrus Heights and Fair Oaks Water Districts, Orange Vale Water Company, the City of Folsom (north of the American River), and periodically to Sacramento Suburban Water District. Additionally, SJWD retails water to customers in Granite Bay and the northeast portion of Sacramento County.

SJWD does not have access to groundwater in its retail service area which includes a very small portion of the southeast corner of the WPCGMP area. SJWD is a participating agency of the Sacramento Groundwater Authority (SGA), and is actively involved in implementing SGA's GMP completed in 2003.

#### 1.3.5.6 Sacramento Groundwater Authority (SGA)

SGA is a joint powers authority (JPA) created to manage the portion of the North American River Groundwater Sub-basin directly south of the WPCGMP area. The SGA boundary includes only the portion of Sacramento County north of the American River (Figure 1-3), referred to as the North Area Basin. SGA's formation<sup>1</sup>

<sup>&</sup>lt;sup>1</sup>The SGA was originally formed in 1998 as the Sacramento North Area Groundwater Management Authority. In 2002, it was renamed the Sacramento Groundwater Authority.

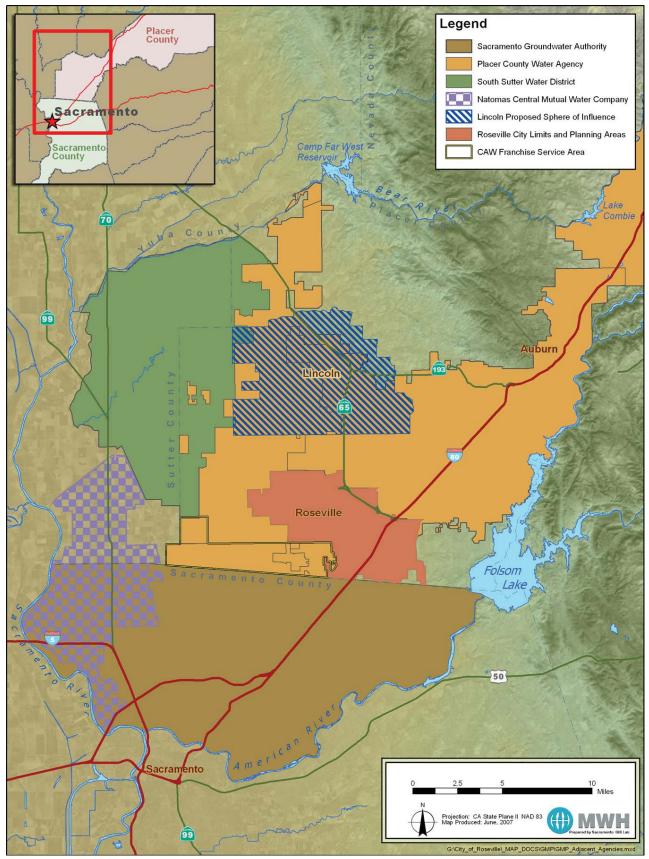


Figure 1-3 – Adjacent Entity Service Areas

in 1998 was a result of a coordinated effort by the Sacramento Metropolitan Water Authority (SMWA) and the Water Forum¹ (WF) to establish an appropriate groundwater management structure for the North Area Basin. The cities of Citrus Heights, Folsom, Sacramento, and the County of Sacramento, signatories to the JPA, hold police powers to manage the underlying groundwater basin. These entities delegate authority to SGA, which in turn manages the basin through representatives of 14 local water purveyors and one representative from agricultural and self-supplied groundwater pumpers. These representatives serve as the SGA Board of Directors².

SGA's management responsibility is a commitment to not exceed the average annual sustainable yield of the North Area Basin, which was estimated to be 131,000 acre-feet<sup>3</sup> in the Water Forum Agreement (WFA).

#### 1.3.5.7 Regional Water Authority (RWA)

RWA represents a number of regional water supply interests and assists members in protecting and enhancing the reliability, availability, affordability, and quality of water resources. One of the principal missions of RWA is facilitating implementation of the conjunctive use program prescribed by the WFA. RWA currently has 19 water purveyor members and three associate members<sup>4</sup>, spanning Placer, Sacramento, Yolo, and El Dorado counties. Roseville, Lincoln, PCWA, and CAW are members of RWA.

#### 1.4 EXISTING GMPS

The following subsection provides a summary of the GMPs completed by WPCGMP participants and the adjacent entities including SGA, SSWD, and NCMWC.

# 1.4.1 WESTERN PLACER GROUNDWATER MANAGEMENT PLAN

In November 1996, PCWA adopted a Resolution of Intent to draft an AB3030 compliant GMP for the western Placer County region of their service area. The plan area included the cities of Roseville and Rocklin and the unincorporated portion of western Placer

County, west of Highway 65 and outside of Lincoln. PCWA and Roseville adopted this joint Western Placer GMP in 1998. In 2003, PCWA updated the plan to achieve Senate Bill 1938 (SB1938) compliance. The goal of the plan was to manage groundwater resources to the benefit of western Placer County and to support the Placer County General Plan. This goal was pursued through a coordinated effort with all stakeholders in the plan area and implementation of activities consistent with other groundwater management planning efforts in the region. The plan identified certain implementation activities:

- Monitoring groundwater levels and groundwater quality.
- Identifying groundwater recharge opportunities, with particular emphasis on the area adjacent to the Placer/Sacramento County line
- Identifying conjunctive use opportunities for non-residential uses in the area north of Pleasant Grove Creek.
- Evaluating the safe yield of the groundwater basin underlying the study area.
- Maximizing groundwater management coordination with all jurisdictions, landowners, and the general public within western Placer County, with those jurisdictions in north Sacramento County portion of the basin, and with the appropriate State and federal agencies.

# 1.4.2 LINCOLN GROUNDWATER MASTER PLAN (2003)

Lincoln completed and adopted a SB1938 compliant GMP in 2003. Its GMP provides a framework to effectively manage and protect its groundwater resources and includes BMOs as well as a series of management actions to be implemented. The GMP mission statement and primary groundwater management goal is to "ensure a viable resource for use by the City (Lincoln) to meet backup, emergency and peak demands without adversely affecting adjacent areas."

The 2003 GMP boundaries includes the City of Lincoln's sphere of influence (SOI), an area that extends slightly beyond the current

<sup>&</sup>lt;sup>1</sup>The Water Forum is a diverse group of business and agricultural leaders, citizens groups, environmentalists, water managers, and local governments in the Sacramento Region that joined together to equally fulfill the objectives of water supply reliability and environmental values of the Lower American River. In 1999, the WF approved the comprehensive Water Forum Agreement (WFA) to fulfill those objectives. The WFA is available online at <a href="http://www.waterforum.org">http://www.waterforum.org</a> or contact the Water Forum office at (916) 808-1999.

<sup>&</sup>lt;sup>2</sup>SGA Board members include representatives of California American Water Company, Carmichael Water District, Citrus Heights Water District, City of Folsom, City of Sacramento, County of Sacramento, Del Paso Manor Water District, Fair Oaks Water District, Natomas Central Mutual Water Company, Orangevale Water Company, Rio Linda/Elverta Community Water District, Sacramento Suburban Water District, San Juan Water District, Golden State Water Company, and individual representatives from agriculture and self-supplied groundwater users (principally parks and recreation districts).

<sup>&</sup>lt;sup>3</sup>This value was estimated based on water use and facilities in the basin at the time of the WFA. This value was based on a number of assumptions, and was not intended to be a fixed value that could not be modified as conditions and assumptions changed in the basin. Examples of changed conditions include new or improved water conveyance, treatment, and storage facilities or changes in water supply contracts.

<sup>&</sup>lt;sup>4</sup>The membership of the RWA encompasses water users in both Sacramento County and Placer County including: California American Water Company, Carmichael Water District, Citrus Heights Water District, City of Folsom, City of Lincoln, City of Roseville, City of Sacramento, City of West Sacramento, Del Paso Manor Water District, El Dorado Irrigation District, Fair Oaks Water District, Fruitridge Vista Water Company, Orangevale Water Company, Placer County Water Agency, Rancho Murieta Community Services District, Rio Linda/Elverta Community Water District, Sacramento Suburban Water District, San Juan Water District, and the Golden State Water Company. Associate members do not directly retail drinking water and do not vote in RWA matters. Associate members include: El Dorado County Water Agency, Sacramento Municipal Utility District, and Sacramento Regional County Sanitation District.

city limits (see Figure 1-3). Lincoln anticipates it will expand its current SOI as part of its 2006 General Plan Update. A draft version of the General Plan Update was published on October 3, 2006.

In addition to its planning benefit, the Lincoln GMP contains a sophisticated array of geophysical information regarding the basin underlying its SOI. Technical information collected to date, which have been included in the 2003 GMP and in subsequent investigations, has generated an extensive data set that Lincoln intends to use to further understand and manage its underlying groundwater resources. With assistance from an AB303 grant from the California Department of Water Resources (DWR), Lincoln installed five new multi-completion monitoring wells in 2005 to aid in basin management activities.

The GMP provides a framework process that describes the series of steps necessary to manage the basin, beginning with collecting the necessary data and developing a stakeholder participation program.

The Lincoln GMP contains the following BMOs:

- Maintain groundwater elevations at a level that will ensure an adequate groundwater supply for backup, emergency and peak demands, without causing significant adverse impacts to adjacent areas.
- Preserve overall groundwater quality by stabilizing existing groundwater contaminant migration, avoiding known contaminated areas, and protecting recharge areas.
- Ensure that the direction of groundwater flow continues its southwesterly flow pattern despite additional groundwater extraction or other potential influences.

To achieve these BMOs, Lincoln recognized that a substantial number of management actions must be continued or implemented. In many instances these actions apply to more than one BMO and relate to multiple AB 3030 management plan objectives. Table 1-2 summarizes the management actions that as of 2003 (1) have already been undertaken, (2) are slated for implementation and have a budget, or (3) are still in the planning stages.



#### 1.4.3 SGA GROUNDWATER MANAGEMENT PLAN

SGA adopted its GMP in December 2003 to establish goals, man-

agement objectives, and components needed to manage the groundwater basin. SGA's GMP provides a starting point from which SGA will continually assess the status of the groundwater basin and make ap-



American River

propriate management decisions to ensure a sustainable resource. SGA's GMP contains the following management objectives:

- Maintain or improve groundwater quality in the SGA area for the benefit of basin groundwater users.
- Maintain or improve groundwater elevations that result in a net benefit to basin groundwater users.
- Protect against any potential inelastic land surface subsidence.
- Protect against adverse impacts to surface water flows in the American River and Sacramento River.
- Protect against adverse impacts to water quality resulting from interaction between groundwater in the basin and surface water flows in the American River and Sacramento River.

# 1.4.4 SSWD GROUNDWATER MANAGEMENT

On February 23, 1993, SSWD adopted a Resolution of Intention to draft a GMP (SSWD, 1997). Subsequent to adopting this resolution, SSWD had directed the preparation of a report on groundwater conditions within SSWD. The report covers the period 1970 through 1993 and updated a prior report for the period 1963 to 1968. The plan area included all SSWD land located within Sutter and Placer counties.

SSWD's primary goal in developing the GMP was "to work cooperatively with landowners within the district to most efficiently manage the groundwater resources and to continue with an efficient and effective conjunctive use program." The plan included components identified in California Water Code section 10753.7, which are:

- Monitoring (groundwater levels and quality)
- Conjunctive use program and mitigation of overdraft
- Relations with State and Federal regulatory agencies
- Well construction policies and administration of well abandonment and destruction program

#### 1.4.5 NCMWC Groundwater Management Plan

In 2000, NCMWC adopted a GMP for its service area in both Sacramento and Sutter counties (Luhdorff & Scalmanini Consulting Engineers (LSCE), 2000). This GMP applies to NCMWC's Sutter County service area while, SGA's GMP covers the Sacramento County portion of NCMWC's service area. No additional information is available from this GMP.

#### 1.5 OTHER MANAGEMENT EFFORTS

Over the past several decades, water supplies of the region have been affected by:

- Extended drought and wet periods
- Increased push to dedicate surface water for environmental purposes
- Declining groundwater levels
- On-going and potential impacts to surface water quality and groundwater quality

At the same time, demand for water in the region has continued to grow. To address these challenges, water purveyors in the region have invested substantial time and resources in a progression of regional planning efforts. This section summarizes the planning efforts that were led by WPCGMP participants.

#### 1.5.1 Roseville

The following subsection provides a summary of relevant Roseville planning efforts.



#### 1.5.1.1 Urban Water Management Plan (2005)

Roseville's Urban Water Management Plan (UWMP) was originally adopted in 1986, and has been updated in 1991, 2002, 2003 and 2005. The Roseville UWMP provides a framework for public participation for the planning of water resource supply and water use provisions for all residential, commercial, industrial, institutional/government, landscape/recreational, and agricultural sectors. The UWMP includes a supply and demand comparison, outlines future

projects to meet projected water use including water supply, treatment, storage, distribution and groundwater well facilities, and contains water demand management measures and water shortage contingency plans. The plan also identifies Roseville's current water recycling program and future opportunities.

#### 1.5.1.2 General Plans (1992, 1993 and 2004)

Although Roseville's first General Plan was adopted in 1963, and consisted basically of a land use map, the first comprehensive General Plan for Roseville was adopted in 1977. While various elements were updated since 1977, the 1992 General Plan represented the first comprehensive update since that time. The 1992 General Plan did not include land use allocations beyond those previously identified, but it did include substantial policy revisions. Since the 1992 update, land use allocations have been modified by the Roseville City Council several times with the adoption of the Del Webb, North, Highland Reserve North, and Stoneridge Specific Plans, and with the annexation of the Pleasant Grove Waste Water Treatment Plant (WWTP) and Foothill Business Park properties. However, the core polices of the 1992 update were retained. A technical update to the General Plan was accomplished in January 2003, and it focused on updating information that had changed as a result of previous City Council actions (adoption of specific plans and update of the Capital Improvement Program, etc).

Also, in 2003 the General Plan was updated with the adoption of the West Roseville Specific Plan, annexation, and sphere of influence amendment. With the adoption of the Specific Plan and annexation, several revisions to the General Plan occurred including inclusion of the Roseville's previously adopted Guiding Principles for development west of Roseville, a change in land use allocation, and map revisions. The General Plan integrates Roseville's nine adopted specific plans. These plans are incorporated as a part of the General Plan and should be referred to for specific requirements.

The Roseville General Plan is designed to be:

- Long-range: However imperfect the vision of the future is, almost any development decision has effects lasting more than 20 years. In order to create a useful context for development decisions, the General Plan looks towards the year 2010 and beyond.
- Comprehensive: The General Plan provides direction to coordinate all major components of the community's physical development.
- General: Because it is long-range and comprehensive the General Plan, in most cases, is general. The plan's purpose is to serve as a framework for detailed public and private development proposals. It establishes requirements for additional planning studies, which must be completed prior to any future specific plan to modify the General Plan land use allocation.

The Roseville General Plan serves to:

 Enable Roseville's Council and planning commission to establish long-range development policies.

Table 1-2. City of Lincoln GMP Management Action Plans

1. Develop and implement a groundwater monitoring program  a. Expand the network  b. Collect relevant well and aquifer data  c. Establish data collection methods and frequency  d. Develop a groundwater database  e. Identify water quality constituents of concern  f. Monitor fresh water/saline water interface  g. Monitor status of known contaminant sites  h. Annually prepare and present data  a. Develop and utilize a groundwater basin  a. Develop and utilize a groundwater model  b. Characterize and evaluate local conditions  c. Develop a water budget, estimate the perennial yield  d. Research and apply for relevant grant funding  3. Continue long-term planning and evaluation of potential projects  a. Explore conjunctive use opportunities  b. Develop a rectange program  c. Review proposed development plans  d. Research and apply for relevant grant funding  4. Establish operational requirements for City production wells  a. Develop and utilize a groundwater protection Program  a. Explore conjunctive use opportunities  b. Develop a rectange program  c. Review proposed development plans  d. Research and apply for relevant grant funding  4. Establish operational requirements for City production wells  a. Develop and implement a Groundwater Protection Program  a. Conduct a search for abandoned wells  b. Review permits for the destruction of wells  c. Establish standard well construction policies  A. J.			вмо		AB3030
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6. Continue Public Participation					
a. Make results of monitoring program available X X X 7	· · · · · · · · · · · · · · · · · · ·	X	Х	X	7
b. Continue Advisory Committee X X X 11, 12					11, 12
c. Engage state and federal regulatory agencies					
d. Continue to engage local agencies and interests					

- Provide a basis for judging whether private development proposals and public projects are in harmony with the policies.
- Guide public agencies and private developers in designing projects that are consistent with Roseville's policies.

Regarding groundwater recharge and water quality, Roseville's goals outlined in the General Plan are to:

- Continue to improve surface water quality and accommodate water flow increases.
- Enhance the quality and quantity of groundwater resources.

Plans to protect the Roseville's water resources and water quality include the development of standards for urban run-off, monitoring groundwater, and protection of waterways and groundwater recharge areas.

### 1.5.1.3 Aquifer Storage and Recovery (ASR) Phase I and II Testing at the Diamond Creek Well

Roseville's ASR program is being developed with the intention of using the aquifer to store surplus water in "wet" years for extraction during times of peak demand as part of a conjunctive use program. Roseville's ASR program is currently being evaluated using a two phase test approach. Phase I testing was completed in 2005 and consisted of a relative short duration pilot scale cycle test (cycle test). This is followed by a scheduled 30-month Phase II demonstration test. Both phases of testing are being conducted at the Diamond Creek Well (DCW) in the northwest portion of Roseville.

Constructed in 2002, the DCW is used for backup water supply and was specifically designed for ASR use. Three monitoring wells were constructed adjacent to the DCW for the purpose of data collection during testing. Potable water from the Roseville WTP is conveyed to the DCW for the purpose of ASR testing.

#### 1.5.1.3.1 Phase I Pilot Scale Testing (Cycle Test)

Roseville submitted a Report of Waste Discharge (ROWD) on January 7, 2003, as a requirement of the Central Valley Regional Water Quality Control Board (CVRWQCB) to permit an ASR Phase I cycle

test. The CVRWQCB granted a waiver to allow testing on May 6, 2003. The Phase I cycle test was performed from May 5, 2004, to September 20, 2004, and consisted of three general stages of data collection: baseline, injection, and extraction.

The baseline stage consisted of a series of monitoring and sampling events. The injection stage of the cycle test consisted of 26 days of continuous surface water injection at an average flow rate of approximately 1,375 gallons per minute (gpm). The total volume of water injected was 158 acre-feet (AF). During the extraction stage, flow rates averaged approximately 3,434 gpm. The total volume of water extracted during three phases was 439 AF, representing 278 percent of injected water volume. During the three stages of cycle testing groundwater elevation and quality data were frequently collected at the DCW and at the nearby monitoring wells.

Data from this Phase I cycle test were used to provide an understanding of local changes in groundwater elevations and quality, and to explore additional ASR testing (Phase II). Cycle testing showed very favorable conditions with no apparent adverse impacts to groundwater levels and overall improvements to groundwater quality.

#### 1.5.1.3.2 Phase II Demonstration Testing

Roseville submitted a second ROWD to the CVRWQCB on May 16, 2005, for Phase II demonstration testing. This ROWD was granted by the CVRWQCB on August 5, 2005. Phase II activities began in November 2005 and are scheduled to conclude in 2008. The primary objectives of Phase II are to further evaluate system operation and to determine the fate and transport of trace levels of disinfection byproducts stored underground. Phase II ASR demonstration testing includes five stages of data collection as follows:

- a) One month baseline
- b) Six months of injection totaling 1,094 AF of water at a rate of 1,375 gallon per minute (gpm)
- c) Eleven months of injected water storage in the aguifer



Diamond Creek ASR Well

- d) Ten months of extraction at 2,500 gpm recovering 3,314 acrefeet of water
- e) Two months of post testing

Although final results of Phase II extraction tests are pending, and therefore not yet analyzed, prior results and recent correspondence with the CRVWQCB indicate that Roseville will be able to work towards designing and permitting a full-scale ASR system within its jurisdiction.

# 1.5.1.4 Dry Creek Recycled Water Groundwater Re charge Study (2004)

The Dry Creek Recycled Water Groundwater Recharge Feasibility Study identifies and evaluates potential opportunities to recharge groundwater in Placer and Sacramento counties through application of recycled water. The study identifies and screens possible direct and in-lieu recharge opportunities and then evaluates these opportunities based on economics, legal considerations, public perception, and potential for groundwater benefit. The four principal goals of the study are to:

- 1. Identify the potential market in the region for recycled water for irrigation purposes.
- 2. Evaluate participation in the SGA's regional groundwater banking and exchange program.
- 3. Investigate the institutional and regulatory issues that exist in implementing a recycled water/groundwater recharge program.
- 4. Identify mechanisms for protecting Roseville's existing water rights.

The potential benefits provided by the recharge programs are estimated assuming the water is used for two general purposes:

- 1. A component of a regional water transfer program such as that undertaken by the SGA in 2002.
- 2. A source of dry-year water supply for Roseville.

The study also quantifies the potential benefit that a recycled water recharge program may have on the underlying groundwater aquifer. When a system is established by the SGA to give credit to agencies that contribute to groundwater recharge, the study will serve as the foundation for Roseville to integrate their program with SGA's efforts.

The study recommends that water purveyors in the Sacramento region will need to look for more sophisticated alternatives for supplying water. Recycled water is an underutilized resource that can help to augment existing water supplies. The Dry Creek Recycled Water Groundwater Recharge Feasibility Study can help Roseville to continue to meet water users' needs, while ensuring the long-term sustainability of the region's groundwater basin and protecting the Lower American River through cooperation with the SGA.

#### **1.5.2** LINCOLN

The following subsection provides a summary of relevant Lincoln planning efforts.

#### 1.5.2.1 Reclamation Master Plan (2004)

Recognizing the value of water and in conjunction with State Water Resources Control Board's policy encouraging the reclaimed water, Lincoln developed a Reclamation Master Plan to distribute

reclaimed water to industry, landscaping and park facilities within Lincoln. The Reclamation Master Plan lays out steps for development of a reclaimed water distribution system incorporating the Reclamation Booster



Pump Station constructed with the WWTRF and converted sewer force mains. It also defines the phases for project implementation based on available reclaimed water, varying reclamation demands of different users at different times, and costs.

#### 1.5.2.2 UWMP (2005)

In compliance with DWR requirements, Lincoln updated its UWMP in 2005. The Lincoln UWMP outlines a public outreach strategy, water supplies, water quality, water demands, and supply and demand comparisons. The UWMP also describes Lincoln's recycled water usage and plans for expansion, water conservation measures, its progress toward conservation implementation, and a water shortage contingency plan.

#### 1.5.2.3 General Plan Update (2006)

Lincoln's General Plan Update was published on October 3, 2006. The update serves several purposes, including:

- To provide a description of current conditions in the city that can be used to assess the current state of development in the city and highlight the trends impacting the city.
- To provide the public with information on Lincoln and to provide opportunities for meaningful participation in the planning and decision-making process.
- To identify planning issues, opportunities, and challenges that should be addressed in the General Plan update.
- To ensure that the General Plan is current, internally consistent, and consolidated for ease of use.
- To improve coordination between the city and local, State, and Federal agencies regarding land use and resource issues.
- To provide guidance for city departments in the planning and evaluation of future land and resource decisions.

#### 1.5.3 PCWA

The following subsection provides a summary of relevant PCWA planning efforts.

#### 1.5.3.1 Integrated Water Resources Plan (IWRP)

This document presents an assessment of the water supply and demand situation in western Placer County. The objectives of this IWRP are as follows:

- Provide a baseline for organized water resources planning within Placer County.
- Coordinates water resources planning for all of the communities in western Placer County.
- Develop water demand versus supply scenarios to create strategy for normal and dry year conditions.
- Provide water demand planning guidance to help PCWA plan for water treatment and conveyance facilities.

The IWRP considers several growth scenarios beyond those in Placer County's current General Plan. Groundwater and reclaimed water were considered as future water supplies, along with updated water demand factors and increased water conservation. The main conclusion of the IWRP is that there is adequate water supply within western Placer County to meet all the demands for each of the growth scenarios.

# 1.5.3.2 Western Placer County Groundwater Storage Study (2005)

The objective of PCWA's Western Placer County Groundwater Storage Study is to develop alternatives for increasing groundwater storage and conjunctive use in western Placer County. Increased conjunctive use could lead to greater reliability of water supply for agricultural water users and greater water management flexibility for PCWA. North American River Integrated Groundwater Surface Water Modeling data were used to evaluate sustainable yield in the study area. The study was conducted with grant support from DWR through Proposition 13 bond funds (the Safe Drinking Water, Clean Water, Watershed Protection, and Flood Protection Act).



#### 1.5.3.3 Water Systems Infrastructure Plan (2003)

PCWA prepared the Water Systems Infrastructure Plan (WSIP) which outlined a plan to ensure a reliable, long-term water supply for its customers, based on anticipated growth in PCWA's service area. The objectives of the WSIP are:

- To provide a comprehensive, detailed evaluation of PCWA's water supplies.
- To identify the possible alternatives of water diversion, treatment, and conveyance facilities to maximize the use of PCWA's water entitlement.

The WSIP includes:

- A review of water demands
- A description available water supplies and an outline of the related constraints and condition
- A frameword for reviewing the development of three logical increments of new surface water supplies and an evaluation of the reliability of PCWA's surface water distribution
- A description of PCWA's water distribution system and operations
- Identification of a timeline for constructing new capital facilities based on projected growth scenarios for each water supply alternative
- Development of a set of reliability criteria, test of the alternative infrasturcture
- Development of a Capital Improvement Project List and comparison of the needed water connection charge for each alternative Infrastructure Program Alternative
- An Environmental Sensitivity Study and a general sensitivity analysis for several identified near-term projects.

#### 1.5.3.4 UWMP (2005)

In compliance with DWR requirements, PCWA updated its UWMP in 2005. According to the UWMP, PCWA provides retail water service to approximately 220,000 people in Placer County. Water service is provided for approximately 36,000 agricultural, municipal, and industrial connections, with both raw and treated water, in the cities of Auburn, Colfax, Loomis, and Rocklin, and to most of the small communities in unincorporated western Placer County along the I-80 corridor below Alta. PCWA also provides treated water to several mutual water companies within its Zone 1 service area that operate their own distribution systems. UWMP also describes the wholesale water deliveries of treated water to Lincoln and CAW and untreated water off of its canal system to several smaller water utilities that provide their own treatment and distribution service. PCWA also provides surface water out of the American River that is diverted and used by SJWD, Roseville, and Sacramento Suburban Water District. These wholesale customers are required to prepare their own UWMPs.

#### 1.5.4 caw

The following subsection provides a summary of relevant CAW planning efforts.

### 1.5.4.1 West Placer Water System Comprehensive Planning Study (2006)



The West Placer Water System is a new system and is expected to grow. CAW developed the Comprehensive Planning Study (CPS) to provide a review and analysis of the supply, production, and distribution facilities for the West Placer Water System. The primary goal of the CPS is to identify and prioritize capital improvements that are necessary to ensure that the West Placer Water System can safely and reliably meet current and projected water demands, while continuing to provide safe, adequate, and reliable service through the planning period. The CPS addresses the following elements:

- Customer demand projections through the year 2020.
- Evaluation of the adequacy for existing and future source of supply.
- Production facility assessment including existing and proposed water quality, treatment, and safety standards.
- Analysis of the water system transmission, distribution, and storage needs through modeling.

As described in the CPS, the current population of CAW's West Placer Service Area is 3,041 (SACOG, 2006). Demographic estimates for the project growth scenario are based on land use. According to the Enhanced General Plan growth scenario, anticipated by 2020 build-out of the West Placer Services Area will have approximately 24,500 residential dwelling unites (DU) (16,721 residential customer connections.) . According to the CPS, this will equate to a 2020 demand of 15,748 acre-feet per year.

Current sources of supply for the West Placer Service Area rely on treated surface water supplies from PCWA. This supply is conveyed through Roseville's distribution system to CAW's connection point in West Placer. Groundwater is available for emergency use only through an interconnection with the CAW Antelope system

via the Cook-Riolo inter-tie. The current Placer County franchise agreement with CAW restricts the use of groundwater.

The CPS provides an analysis of the production facilities and distribution system in the West Placer Service Area and outlines specific project recommendations. These recommendations include improvements to production, storage, and distribution facilities. Projects identified in the CPS have been divided into two groups: Priority A and Priority B. Priority A projects are expected to be incorporated into CAW's Strategic Capital Expenditure Plan (SCEP) as the budget allows. Priority A projects are needed to comply with current or anticipated future regulations, address significant safety concerns, or ensure that adequate water supplies are available to meet projected demands. Priority A projects include:

- Walerga Road Tank and Booster Station
- Additional PCWA Supply Connection at PFE Road
- Crowder Lane Control System Upgrades
- Disinfection Byproducts Study

Priority B projects address longer-term needs, that relate to future growth or improvements that enhance system reliability. This may include developer-funded transmission and distribution facilities.

#### 1.5.4.2 UWMP (2005)

The Northern Division of CAW completed its UWMP in 2005 under the terms of AB 797 (1983). The Northern Division of CAW is the largest private water operation in Sacramento County and consists of ten districts serving 171,000 people in the operating service area including Antelope, Arden, Lincoln Oaks, Parkway, Suburban/Rosemont, Security Park (Sunrise), West Placer, Isleton, Walnut Grove, and Lakefield.

The West Placer Service Area within the Northern Division of the CAW is located within the WPCGMP region (see Figure 1-2). CAW has a franchise agreement to supply water to the West Placer Service Area as it develops in future years. The West Placer Service Area is the only portion of the Northern Division of CAW that relies exclusively on surface water, which is supplied from

PCWA. Currently, CAW serves less than 1,000 customers in the West Placer service area, but is expected to grow to as many as 18,000-22,000 connections as the area approaches build-out. Some newly developing areas in the West Placer Service Area are provided with recycled water from



Roseville's Dry Creek Wastewater Treatment Plant. This recycled water is used for irrigation of landscaping in parks, street medians, the Morgan Creek Golf Country Club, and open space areas. As part of UWMP implementation, CAW will continue to support the use of reclaimed water for irrigation and potentially other uses in the West Placer Service Area.

#### 1.5.5 REGIONAL

The following subsection provides a summary of regional planning efforts.

# 1.5.5.1 Placer County General Plan (1992 and 1994)

The Placer County General Plan consists of two types of documents: the Countywide General Plan, and a set of more detailed community plans covering specific areas of the unincorporated County.

The Countywide General Plan provides an overall framework for development of the County and protection of its natural and cultural resources. The goals and policies contained in the Countywide General Plan are applicable throughout the County, except to the extent that County authority is preempted by cities within their corporate limits

Adopted in the same manner as the Countywide General Plan, a community plan provides a more detailed focus on a specific geographic area within the unincorporated county. The goals and policies contained in a community plan supplement and elaborate upon, but do not supersede, the goals and policies of the Countywide General Plan.

The Countywide General Plan consists of two documents: the General Plan Background Report and the General Plan Policy Document. The Background Report inventories and analyzes existing conditions and trends in Placer County. It provides the formal supporting documentation for general plan policy, addressing 11 subject areas: land use, housing, population, economic conditions and fiscal considerations, transportation and circulation, public facilities, public services, recreational and cultural resources, natural resources, safety, and noise.

The General Plan Policy Document includes the goals, policies, standards, implementation programs, quantified objectives, the Land Use Diagram, and the Circulation Plan Diagram that constitute Placer County's formal policies for land use, development, and environmental quality.

The General Plan Policy Document is divided into three main parts. Part I describes the Countywide Land Use Diagram and allowable uses and standards for each of the designations appearing on the diagram. Part I then describes standards for land use buffer zones. Finally, Part I describes the Countywide Land Use Diagram, standards for the roadway classification system on the diagram, and standards for transit corridors

Part II contains explicit statements of goals, policies, standards, implementation programs, and quantified objectives. Part II is divided into the following ten sections, which roughly correspond to the organization of issues addressed in the General Plan Background Report. These are as follows: Land Use, Housing (adopted separately June 22, 1992), Transportation and Circulation, Public Facilities and Services, Recreational and Cultural Resources, Natu-



ral Resources, Agricultural and Forestry Resources, Health and Safety, Noise, and Administration and Implementation.

Part III of the Policy Document consists of general standards for the consideration of future amendments to the General Plan.

Ultimately, the intent of the Placer County General Plan is to protect the County during future urban growth and to partially provide an understanding of the approval process necessary to protect/promote groundwater interests.

### 1.5.5.2 Water Forum Agreement and Successor Effort

Beginning in 1993, the Water Forum process brought together a diverse group of stakeholders comprised of business and agricultural leaders, citizens' groups, environmentalists, water managers, and local governments to evaluate available water resources and the future water needs of the Sacramento region, including communities from Sacramento, Placer and El Dorado counties. These stakeholders identified two coequal objectives to guide in the development of the Water Forum Agreement (WFA):

- Provide a reliable and safe water supply for the region's economic health and planned development through the year 2030.
- Preserve the fishery, wildlife, recreational, and aesthetic values of the Lower American River.

The WFA also established a Water Forum Successor Effort (Successor Effort) to administer the implementation of the agreement. The Successor Effort:

- Ensures continuity between the Water Forum and the Successor Effort.
- Preserves existing technical expertise.
- Avoids the costs, confusion and delays inherent in transferring the Successor Effort to a different organization.
- Avoids creating another redundant government entity.

All parties which signed the Water Forum Agreement; including Roseville, PCWA, and CAW are Water Forum signatories and

are full participants in the Successor Effort. In addition, there is a supplementary funding agreement which includes the City of Sacramento, the County of Sacramento and the other agencies (including agencies outside of Sacramento County) which, consistent with the funding principles, are paying to support the work of the Successor Effort. It is important to note that:

- All WFA signatories have equal standing in the Successor Effort whether they are a public agency, investor-owned utility, or citizen interest/advocacy organization.
- Though Water Forum Successor Effort staff will be employees or contractors of the City of Sacramento, the Successor Effort representatives will provide over-all policy direction for work by staff.

# 1.5.5.3 American River Basin Integrated Regional Water Management Plan (IRWMP)

Regional Water Authority (RWA), Freeport Regional Water Authority (FRWA), and Sacramento County Water Agency (SCWA), along with the various members and stakeholders, have developed the American River Basin (ARB) Integrated Regional Water Management Plan (IRWMP). The ARB region encompasses all of Sacramento County and most of Placer and El Dorado counties, except the areas in the Tahoe Basin, which are part of a separate planning area. An IRWMP is a comprehensive planning document prepared on a regional scale that identifies priority water resources projects and programs with multiple benefits. An IRWMP relies upon specific and focused local and sub-regional planning efforts for its foundation, and investigates a broad spectrum of water resource issues including water supply, flood management, water quality, environmental restoration, environmental justice, stakeholder involvement, and far-reaching community and statewide interests. A key difference in IRWMPs (as compared to other planning documents) is that IRWMPs integrate multiple water management strategies to solve multiple priority challenges.

The ARB IRWMP was adopted in May 2006. As projects/programs outlined in the IRWMP are implemented, the plan itself will be reviewed periodically to address changes, identify issues of



concern, and provide for additional study and analysis. New projects/programs will continue to be identified and incorporated. The participants designed the IRWMP as a living document that can be readily updated as the needs of the region change over time.

PCWA, Roseville, Lincoln, and CAW are involved in the ARB IRWMP through their participation in RWA.

### 1.5.5.4 Other Ongoing Groundwater Management Related Activities within the WPCGMP Area

In addition to the on-going programs by plan participants, there are several other on-going groundwater-related activities within the WPCGMP area. Coordination between these efforts and plan participants will be discussed in more detail later in this WPCGMP. The activities closely related to the plan participant's groundwater management efforts include, but are not limited to, the following:

- Monitoring of groundwater levels and quality by the California Department of Water Resources (DWR).
- Monitoring of groundwater quality by the U.S. Geological Survey (USGS) as part of its National Groundwater Ambient Monitoring Assessment (GAMA) Program.
- Monitoring of site investigations and remediation efforts at known leaking underground storage tanks (LUSTs) coordinated by the CVRWQCB.
- Soil contamination investigation and remediation activities at miscellaneous sites in the WPCGMP area, including the Union Pacific Railroad Yard in Roseville, California and the Alpha Explosives Facility just north of Lincoln.

# 1.6 AUTHORITY TO PREPARE AND IMPLEMENT A WPCGMP

The authority of plan participants to manage this portion of the Sub-basin is provided through a memorandum of understanding (MOU). Council members and/or board of directors for Roseville, Lincoln, PCWA, and CAW elected to prepare this WPCGMP as one of the tools necessary to effectively manage the basin. These plan participants are preparing this WPCGMP consistent with the

provisions of CWC § 10750 et seq. as amended January 1, 2003. This document does not supersede the specific objectives and actions included in Lincoln's 2003 WPC-GMP, or otherwise infringe on the autonomy or authority of Roseville, Lincoln, PCWA or CAW, unless otherwise agreed upon as described in Section 4 of this document.

#### 1.7 WPCGMP COMPONENTS

The WPCGMP includes both required and voluntary components.

Table 1-3 lists these components and indicates the section(s) in which each component is addressed.

Table 1-3. Location of WPCGMP Components

Description	Section(s)
A. CWC § 10750 et seq., Required Components (1)	
Documentation of public involvement statement.	3.5 & App. A
2. Basin Management Objectives (BMOs).	3.3
<ol> <li>Monitoring and management of groundwater elevations, groundwater quality, inelastic land surface subsidence, and changes in surface water flows and quality that directly affect groundwater levels or quality or are caused by pumping.</li> </ol>	3.6
4. Plan to involve other agencies located within groundwater basin.	3.5
5. Adoption of monitoring protocols by basin stakeholders.	3.6
Map of groundwater basin showing area of agency subject to GMP, other local agency boundaries, and groundwater basin boundary as defined in DWR Bulletin 118.	Fig. 1-3
7. For agencies not overlying groundwater basins, prepare GMP using appropriate geologic and hydrogeologic principles.	N/A
B. DWR's Recommended Components (2)	
Manage with guidance of advisory committee.	3.5.3
2. Describe area to be managed under GMP.	1 & 2
3. Create link between BMOs and goals and actions of GMP.	Table 3-1
4. Describe GMP monitoring program.	3.6
5. Describe integrated water management planning efforts.	1.5 & 3.9
6. Report on implementation of GMP.	4.1
7. Evaluate GMP periodically.	4.2
C. CWC § 10750 <i>et seq.</i> , Voluntary Components <sup>(3)</sup>	
Control of saline water intrusion.	3.7.6
2. Identification and management of wellhead protection areas and recharge areas.	3.7.3 & 3.7.4
3. Regulation of the migration of contaminated groundwater.	3.7.5
4. Administration of well abandonment and well destruction program.	3.7.2
5. Mitigation of conditions of overdraft.	3.8
6. Replenishment of groundwater extracted by water producers.	3.3
7. Monitoring of groundwater levels and storage.	3.6
8. Facilitating conjunctive use operations.	3.8.1
9. Identification of well construction policies.	3.7.1
Construction and operation by local agency of groundwater contamination cleanup, recharge, storage, conservation, water recycling, and extraction projects.	2.3
11. Development of relationships with state and federal regulatory agencies.	3.5.4
12. Review of land use plans and coordination with land use planning agencies to assess activities that create reasonable risk of groundwater contamination.	3.9

<sup>(</sup>A) CWC § 10750 et seq. (seven required components). Recent amendments to the CWC § 10750 et seq. require GMPs to include several components to be eligible for the award of funds administered by DWR for the construction of groundwater projects or groundwater quality projects. These amendments to the CWC were included in Senate Bill 1938, effective January 1, 2003.

<sup>(</sup>B) DWR Bulletin 118 (2003) components (seven recommended components).

<sup>&</sup>lt;sup>(c)</sup> CWC § 10750 *et seq.* (12 voluntary components). CWC § 10750 *et seq.* includes 12 specific technical issues that could be addressed in GMPs to manage the basin optimally and protect against adverse conditions.

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#### SECTION 2

# **Water Resources Setting**

This section describes the current understanding of surface and subsurface features of the WPCGMP area, which is located in the North American River Groundwater Sub-Basin (Sub-Basin) underlying western Placer County. Locations and classification of the different types of groundwater users within the Sub-Basin are shown in **Figure 2-1**. Within the WPCGMP boundaries, public retail water purveyors currently rely on a combination of groundwater and surface water. Groundwater and surface water supplies available for use within the Sub-Basin are briefly summarized below.

Roseville currently utilizes surface and recycled water. Surface water is treated at Roseville's Water Treatment Plan (WTP). However, Roseville plans to use groundwater in the future as a backup water supply source to meet daily and peak seasonal demands.

Lincoln primarily uses treated surface water delivered by PCWA, and relies on groundwater for emergency outages and as a backup water supply source during daily and peak demand periods. Lincoln also provides recycled water from its wastewater treatment recycling facility (WWTRF) for nearby agricultural uses, and is working on expanding the use of recycled water to include non-potable commercial, industrial, and public landscaping needs.

PCWA provides treated surface water for urban users and raw water for agricultural and irrigation and rural users to it's five service zones. PCWA also provides limited groundwater supplies to areas isolated from its surface water delivery system and as a backup supply to the Sunset Industrial Park.

CAW provides treated surface water, purchased from PCWA, for CAW's West Placer Service Area which includes the Dry Creek/West (Placer Vineyards) region, Dry Creek/East region, and a portion of the Curry Creek region. CAW currently does not use groundwater within the West Placer Service Area.

#### 2.1 GROUNDWATER CONDITIONS

This subsection provides a description of general groundwater conditions including the groundwater basin, the geology/hydrogeology, groundwater elevation, and groundwater quality within the WPCGMP area.

#### 2.1.1 Groundwater Basin

This subsection provides a description of the underlying groundwater Sub-basin. The Sub-Basin is defined by DWR as the area bounded on the west by the Feather and Sacramento Rivers, on the north by the Bear River, on the south by the American River, and on the east by the Sierra Nevada Range (DWR, 2003). The Sub-basin is located within the Sacramento Valley Groundwater Basin. DWR Bulletin 118 (2003) provides additional information about the Sub-Basin on the agency's Web site<sup>1</sup> including:

- Surface Area: 548 square miles.
- The eastern Sub-basin boundary is a north-south line extending from the Bear River south to Folsom Reservoir. This represents the approximate edge of the alluvial basin where little or no groundwater flows into or out of the groundwater basin from the Sierra Nevada.



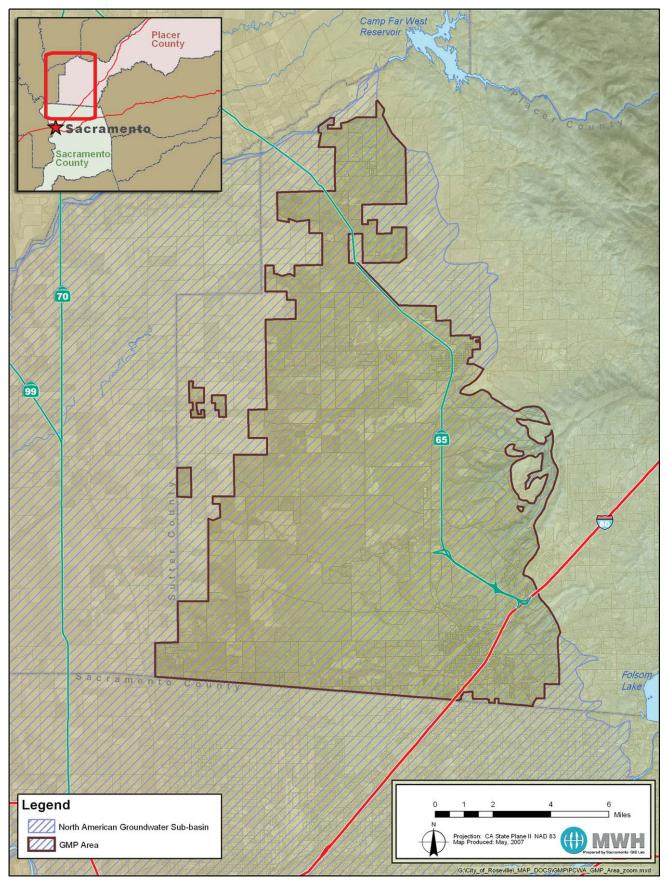


Figure 2-1 – North American Groundwater Subbasin and WPCGMP Area

 The western portion of the Sub-basin consists of nearly flat flood basin deposits from the Bear, Feather, Sacramento and American Rivers, and several small east side tributaries

#### 2.1.2 Geology/Hydrogeology

This subsection provides a regional description of the geologic and hydrogeologic conditions of the underlying groundwater Sub-basin. The California Geological Survey (CGS) and DWR identifies and describes the surface geology and various hydrogeologic formations that constitute the water-bearing deposits underlying the Sub-Basin, respectively.

#### 2.1.3 Hydrostratigraphy

The CGS mapped the surface geology of western Placer County as shown on **Figure 2-2.** Recent alluvial deposits comprise most of the western study area; chiefly clay and silt materials occur adjacent to the Sacramento and Feather Rivers (CGS, 1987 and 1992). These deposits are relatively impermeable. Typically, basin deposits are more coarse grained near to the foothills and therefore are more permeable. Modified from DWR Bulletin 118-3, the stratigraphic profile shown in **Figure 2-3** provides a conceptual representation of the basin's geologic formations and illustrates that the water bearing formations form a wedge that generally thickens from east to west to a maximum thickness of about 2,000 feet under the Sacramento and Feather Rivers (DWR, 1980 and 2003).

Per DWR Bulletin 118-3, the upper unconfined aquifer system consists of the Riverbank (formerly known as Victor) and Turlock Lake/Laguna (formerly known as Fair Oaks-Laguna) formations; the lower semi-confined aquifer system consists primarily of the Mehrten formation. These two systems constitute the major water

producing aquifers in the region. They are composed of lenses of sand, silt, and clay, inter-bedded with coarse-grained stream channel deposits that store water.

The degree of confinement typically increases with depth below the ground surface. However, due to the heterogeneous nature



of the alluvial depositional system, semi-confined conditions can be encountered at shallow depths in the aquifer. At approximately 1,000 to 1,500 feet depth, lies the base of fresh water. Below this boundary lies water originating from marine sediments where total dissolved solids levels (salinity) are too high to be used as a reliable municipal water source. There is no regionally confined

#### Lincoln Hydrogeology - Seismic and Downhole Geophysical Survey Understanding

Lincoln, as a result of several extensive investigations initiated in 1997, using seismic surveys and downhole geophysical tools, has gained a substantial understanding of the portion of the basin underlying Lincoln's SOI (Saracino, Kirby, and Snow. 2003). As an example of information gained, the following is a summary of survey results for five monitoring wells drilled in the winter of 2004.

- Most of the flow capacity (predicted production) is estimated to occur in relatively few discrete aquifer zones that make up a small percentage of the total depth section intersected by each well.
- 2. The relative flow profile indicates the existence of thin zones that are significantly more productive than the remainder of the depth section. These thin zones have a disproportionately large contribution to the overall well flow capacity representing depth-specific, highly transmissive "freeways" for groundwater to flow. The large variability of the estimated discrete depth flow capacity attests to the heterogeneous nature of the geologic material in this area mostly alluvial sediments.
- 3. An example of a monitoring well in the most productive aquifer zone is across the interval 278 to 353 ft below ground surface (bgs), which is not in Mehrten Formation instead it is in a "clean," quartz-rich sand/gravel aquifer section that appears to be alluvial sediments pre-dating the deposition of the Mehrten Formation. The log derived estimated transmissivity for this zone is on the order of 100,000 gallons per day per foot (gpd/ft).
- 4. The primary aquifer zones intersected in the four wells appear to be fairly well confined, based on the presence of low permeability zones that directly overlie and underlie the aquifer zones.
- The estimate of formation ground water salinity indicates no aquifer zones have salinity greater than 500 ppm, mostly less than 300 ppm, although some low permeability, nonaquifer zones appear to have higher ground water salinity.

aquifer system such as that created in the San Joaquin Valley by the Corcoran Clay layer due to the lack of extensive fine grained layers in the subsurface of the Study Area.

#### 2.1.4 Recharge and Extraction of Groundwater

Evaluating changes in aquifer conditions requires an understanding of the dynamic processes and interactions that are taking place as extractions and recharge of the aquifer occur. Conceptual models of the aquifer that describe induced recharge, aquifer storage, and

<sup>&</sup>lt;sup>1</sup> At: http://www.dpla2.water.ca.gov/publications/groundwater/bulletin118/basins/5-21.64\_North\_American.pdf.

differences between localized and regional effects on the aquifer are discussed below. These conceptual models are meant to clarify concepts; not all aspects of groundwater hydraulics are described. These models only apply to the Sub-Basin and adjoining sub-basins within Sacramento and western Placer Counties.

**Recharge.** Groundwater in the Sub-Basin moves from sources of recharge to areas of discharge. Recharge to the Sub-basin system occurs along active river and stream channels where extensive sand and gravel deposits exist, particularly along the Feather, Bear, American, and Sacramento River channels. Additional recharge occurs along the eastern boundary of the Sub-Basin within western Placer County at the transition point from the consolidated rocks of the Sierra Nevada to the alluvial deposited basin sediments (where the semi-confined Mehrten formation is exposed at the ground surface). This typically occurs through fractured granitic and metavolcanic rock that makes up the Sierra Nevada foothills. Other sources of recharge within the area include deep percolation

associated with applied irrigation water and precipitation, as well as from smaller streams that bi-sect the region (i.e. Auburn Ravine and Coon Creek).

Changes in the groundwater surface elevation (or potentiometric surface) result from changes in groundwater recharge, discharge, or extraction. In some instances, this change in groundwater elevation can induce natural recharge at locations where rivers or streams and the aquifer are hydraulically connected. To the extent that a hydraulic connection exists, as groundwater conditions change, the slope or gradient of the groundwater surface may change as well. A steeper gradient away from the stream would induce higher recharge from surface water into the aquifer.

The rate of recharge from streams that are hydraulically disconnected from the groundwater surface is indifferent to changes in groundwater elevations or gradient. This is typically true with smaller streams where the groundwater surface is located far below the streambed. In such cases, surface water percolates

### Roseville Hydrogeology - Aquifer Storage and Recovery (ASR) Program Exploratory Borehole, Monitoring Well, and Production Well Finding

From 2002-2006, Roseville installed 4 production wells and 4 monitoring wells in the northwest portion of the city limits as part of its Aquifer Storage and Recovery (ASR) program. To support the ASR program, Roseville initiated the collection of a comprehensive set of hydrogeologic data at these wells; including lithologic, geophysics, well pump tests, and groundwater elevation and quality. This data was collected and/or analyzed by multiple ASR program partners including; the City of Roseville, the U.S. Geological Survey, Lawrence Livermore National Laboratory, Department of Water Resources, Schlumberger Water Services, and MWH. Much of this data has been fully documented in well construction and/or ASR testing reports. A general summary of some of these findings is provided in the following paragraphs.

Borehole drilling, lithologic characterization and geophysical logging was conducted to depths of approximately 500-700 feet below ground surface (bgs), depending on the well location. Based on this data, the top of the targeted aquifer zone (Mehrten Formation) was found at depths ranging from approximately 300 to 525 feet bgs with a thickness ranging from approximately 100-200 feet. At each location, the Mehrten Formation was identified by the presence of dark colored, volcanic deposits commonly referred to as "black sands" (DWR, 1974). However, soil cuttings collected from the Mehrten Formation at each well show that grain size varies significantly

from one location to another. At two locations, the largest grain sizes were course sands, while at two other locations large gravels and cobbles were encountered. In all cases, however, layers of sands and gravels within the Mehrten Formation were interbedded with layers of silts and clays with varying thicknesses. Lastly, the presence of thick clay layers above and below the Mehrten Formation in nearly all wells suggests that the Mehrten Formation is fairly well-confined.

The results of production well pumping tests revealed very high production rates of 1,800 to 3,500 gallons per minute (gpm), with specific capacities ranging from 20-75 gallons per foot (gal/ft). Groundwater flow profiling tests performed at several of the wells suggests that the majority of groundwater pumped at each well is produced from a few relatively thin (5-10 feet thick), highly productive zones within the Mehrten Formation.

Overall, water quality within the Mehrten Formation was found to be excellent, with all constituents meeting maximum contaminant levels (MCLs) for drinking water. The one exception was at a monitoring well located towards the western boundary of Roseville where iron, manganese and TDS were found at levels exceeding the MCL. Here, the Mehrten Formation is located approximately 550-700 ft bgs. At this location, the production well was screened to draw groundwater above the Mehrten Formation (at the bottom of the Laguna Formation) where better water quality was observed.

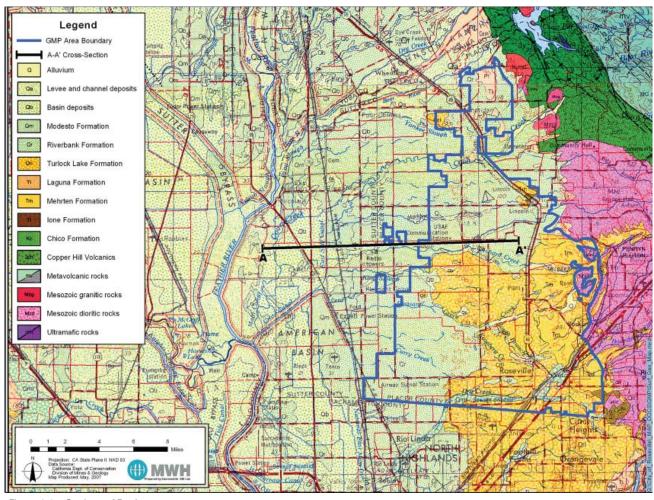


Figure 2-2 – Geology of Region

through the unsaturated zone to the groundwater and its rate is a function of the aquifer materials underlying the streambed and the water level in the surface stream. The rate of infiltration under these condi-



tions is not controlled by the change in elevation of the underlying groundwater. In the case of larger rivers, the American and Sacramento Rivers are considered to be hydraulically connected. This WPCGMP recognizes the importance of maintaining hydraulic connections with the larger river sources for sustainability of the groundwater supply and the environmental benefits of keeping water flowing in the riverbed.

**Localized Impacts of Groundwater Extraction.** When extractions occur from a single well, a localized cone of depression is formed around the well. The shape and depth of the cone of depression depends on several factors including, but not limited

to: (1) the rate of extraction; (2) the presence of nearby sources of recharge and/or extraction;, (3) aquifer transmissivity; (4) natural impervious barriers or earthquake faults; and (5) the "confined" or "unconfined" state of the aquifer, (i.e., storage coefficient). Over time, extraction from an unconfined aquifer can de-water the aquifer around the well. However, when extraction ceases, the water level within the aquifer typically rebounds to its pre-extraction condition.

A confined or semi-confined aquifer behaves differently since the water is under pressure from a recharge source. Instead of de-watering the aquifer, a change in confining pressure occurs as a result of extractions; the aquifer remains saturated. In a confined aquifer, the pressure or piezometric surface elevation decline is more dramatic than in an unconfined aquifer; however, the recovery to pre-extraction conditions is typically much faster.

**Regional Impacts of Groundwater Extraction.** Large regional cones of depression can form in areas where multiple groundwater extraction wells are in operation. The location and shape of a regional cone of depression is influenced by the same factors as a single well. A regional cone of depression within western Placer County and a larger cone of depression within Sacramento County

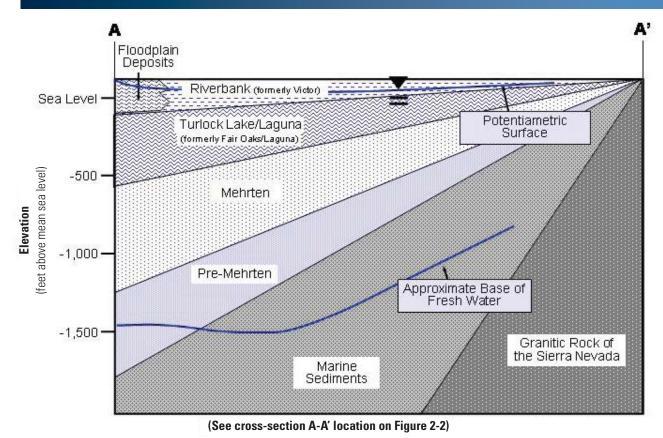


Figure 2-3 – Stratigraphic Profile

is shown on **Figure 2-4**. This map was prepared using water elevation data from DWR's water data library available on-line at: http://wdl.water.ca.gov. The map contours were determined using the Inverse Distance to a Power method.

The Inverse Distance to a Power gridding method was used to contour the water elevation data posted on **Figure 2-4.** This contouring method is a weighted average interpolator and is best used when there is a uniform distribution of data. With Inverse Distance to a Power, data are weighted during interpolation such that the influence of one point relative to another declines with distance from the grid node. Normally, Inverse Distance to a Power behaves as an exact interpolator. When calculating a grid node, the weights assigned to the data points are fractions, and the sum of all the weights is equal to 1.0.

Fluctuations in regional cones of depression are measured over years and result from: changes in recharge, and changes in extractions from increasing and decreasing water demands. For example, a sequence of successive dry years can decrease the amount of natural recharge to the aquifer. If this is coupled with a coinciding increase in groundwater extraction, an imbalance is created between natural recharge and extractions. Consequently, groundwater elevations would decrease in response to this imbalance. Over time, the shape and location of the aquifer's regional cone of depression fluctuates.

Intensive use of the groundwater basin has resulted in a general lowering of groundwater elevations near the center of the Subbasin away from the sources of recharge as shown in **Figure 2-4.** 

Spring 2006 Groundwater Elevation Contours. Provided within this subsection is an evaluation of a groundwater elevation contour map for the entire Sub-Basin during spring<sup>2</sup> of 2006 based on DWR information. Spring groundwater elevations are generally about 10 to 20 feet higher than during the fall season. This is because during the spring, the basin has been replenished by winter rainfall and less intensive agricultural activities in winter while prolonged dry season and extensive pumping reduces groundwater storage and lowers groundwater elevations leading to a seasonal cone of depression in the fall months, which is later recovered to some extent in the following spring. For example, during spring 2006 groundwater elevations ranged from 80 feet mean sea level (msl) along the foothills to -30 feet msl in the central portion of Sacramento County and -20 feet msl in the southern portion of Placer-Sutter County.

A regional cone of depression persists in the northern Sacramento and southern Placer-Sutter County area, respectively. Generally groundwater elevations are significantly higher on the eastern edge of the Sub-basin near the Sierra Nevada foothills, and lower on the western edge of the groundwater Sub-basin mimicking surface elevations.

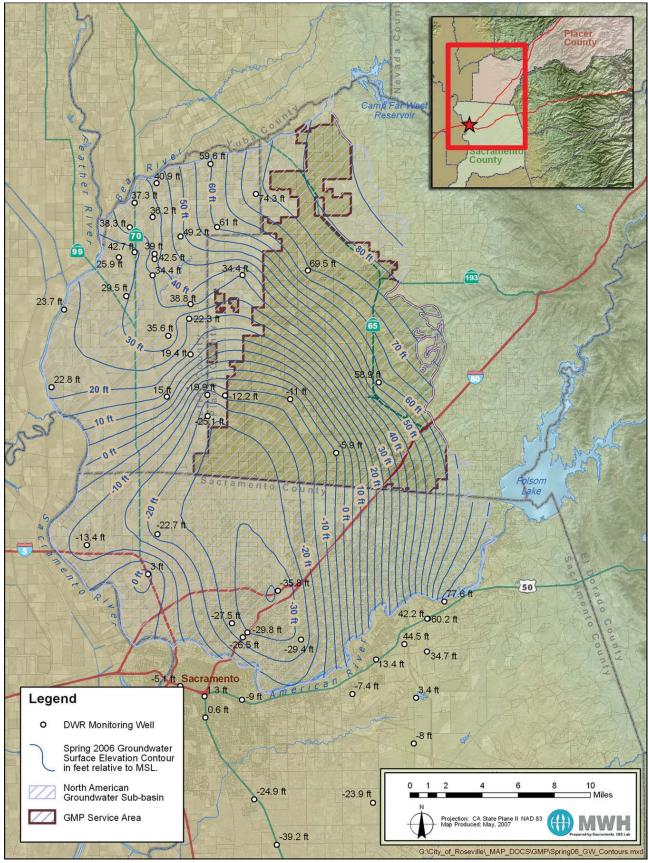


Figure 2-4 – Groundwater Elevation Map

#### 2.1.5 Groundwater Elevation Trends

Groundwater elevation hydrographs for 13 representative wells in the Sub-basin are shown on **Figure 2-5.** Wells closest to Sacramento County experienced declines in groundwater elevations from the late 1940s (earliest measurements) to approximately 1980. Such declines can be primarily attributed to meeting urban and agricultural water demands from groundwater pumping. After 1980, wells 10N05E08L002 and 10N05E12D001 appear to have stabilized. Well 10N06E10C001, located at the edge of Roseville, continued to experience declining groundwater

elevation until 1997 when the elevation drop was approximately 65 feet from its 1947 level. All three of these wells now exhibit stabilized groundwater elevations implying that the basin is in a state of equilibrium.

Specifically for Lincoln, DWR documentation was reviewed during preparation of their 2003 GMP to determine if DWR has identified the portion of the groundwater basin underlying the City to be in a state of overdraft, or if any DWR documentation has projected overdraft within the Lincoln Sphere of Influence (SOI). The following DWR documents were reviewed for this analysis: Bulletin 118-80 (DWR, 1980), Bulletin 118-3 (DWR, 1974), Bulletin 118-6 (DWR, 1978), and the draft basin description for the Bulletin 118 Update (DWR, 2002a). Additional historical groundwater elevation data collected by DWR was reviewed for wells in Lincoln's designated SOI.

Generally, the documents reviewed describe conditions of overdraft in southwestern Placer County and northern Sacramento County, as shown in **Figure 2-4**, located to the southwest of Lincoln. Groundwater elevations directly underlying Lincoln, however, were not described to be in a long-term state of decline. Therefore, the groundwater elevation data contained in those reports, as well as nearly 20 years of data at various sites around Lincoln, further support the conclusion of this WPCGMP that indicate groundwater elevations are not significantly declining within the vicinity of Lincoln.

For wells along the Placer-Sutter County border, the further the distance from Sacramento County line to the north, the higher the groundwater elevations, ranging from about -20 msl at well 11N05E18R001 to about 50 feet msl at well 13N04E23A002. These groundwater elevations varied with the year-to-year hydrologic conditions, but no obvious long-term trend over the most recent 10 years appears to be present.

For wells about one mile from the Bear River, or along the northern boundary of the WPCGMP area, groundwater elevations are relatively stable. The groundwater elevations increase in wells located further upstream toward the Sierra Nevada foothills, from



about 30 feet msl for well 13N04E29A002 to nearly 75 feet msl for well 13N05E03J001.

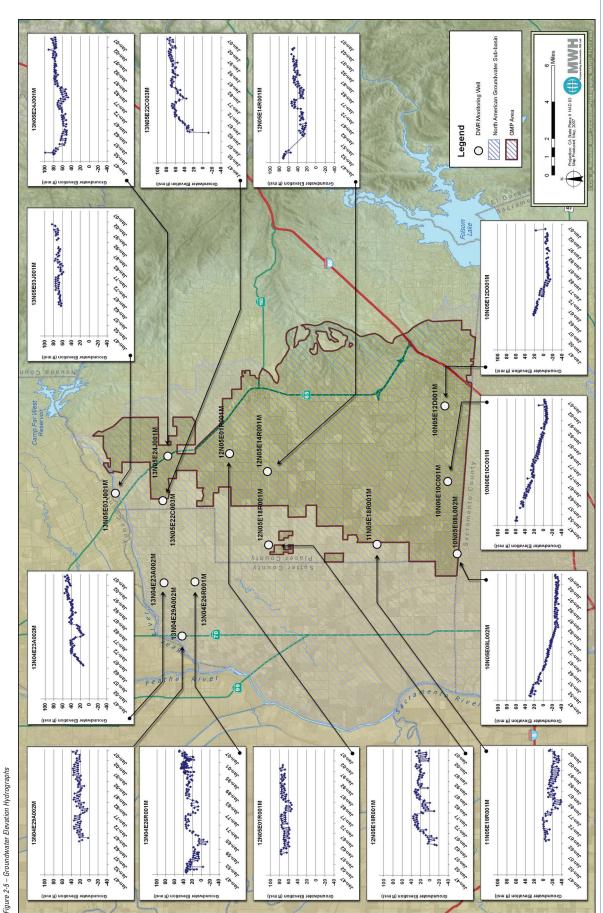
For the remaining wells in **Figure 2-5**, for example in the northeastern quadrant of the WPCGMP area, groundwater elevations are relatively stable or have small persistent increases in groundwater elevations over the last 15 years of record. Their elevations range from 30 to 60 feet msl (wells 12N05E14R001, 13N05E24J001, and 13N05E22C003).

From 1995 to 2005, groundwater elevations were maintained and the declining elevation trend was dampened. Such stabilization was in part due to groundwater management activities stemming from the WFA restraining further increases in groundwater pumping and implementation by Sacramento Suburban Water District of an in-lieu recharge program by reducing groundwater pumping when excess surface water through the San Juan Water District treatment and conveyance system existed. The supply of surface water stems from the regional cooperation between PCWA and a group of northern Sacramento County water purveyors to permit the use of up to 29,500 AF/year of Middle Fork Project (MFP) surface water for interim use in the northern Sacramento County region.

#### 2.1.6 Groundwater Quality

The groundwater quality in the upper aquifer system is regarded as superior to that of the lower aquifer system. The upper aquifer is preferred over the lower aquifer principally because the lower aquifer system (specifically the pre-Mehrten formation) contains higher concentrations of iron and manganese, and in some cases arsenic. Water from the upper aquifer generally does not require treatment (other than disinfection). The lower aquifer system also has higher concentrations of total dissolved solids (TDS, a measure of salinity) than the upper aquifer, although it typically meets standards as a potable water supply. In general, at depths of approximately 1,200 feet or greater (actual depth varies throughout the basin), the TDS concentration can exceed 2,000 milligrams per liter (mg/L). At such concentrations, the groundwater is considered non-potable without treatment.

<sup>&</sup>lt;sup>2</sup> Spring data are based on field measuring from April through June.



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**Background Water Quality.** The chemistry and quality of groundwater for the Sub-Basin has been described in detail in the DWR Feasibility Report, American Basin Conjunctive Use Project, June 1997. A comparison of groundwater quality data with applicable water quality standards and guidelines for drinking and irrigation indicate elevated levels of TDS, specific conductance, chloride, sodium, bicarbonate, boron, fluoride, nitrate, iron, manganese, and arsenic in some locations of the Sub-basin (DWR, 1997).

**Total Dissolved Solids.** The Secondary (aesthetic) Maximum Contaminant Level (MCL) concentration for TDS is 500 mg/L. A review of readily available data (described in the following paragraphs) indicate that TDS concentrations in groundwater are below the MCL throughout much of the region, therefore TDS concentrations should not limit the potable use of groundwater by the overlying agencies.

Regionally high TDS levels exist in the WPCGMP area along the Sacramento River extending from the Sacramento International Airport northward to Bear River. The highest levels of TDS can be found in an area extending just south of Nicholas to Verona, between Reclamation District 1001 and the Sutter Bypass. Some wells in this area have had TDS exceeding 1,000 mg/L (DWR, 1997). Specifically concentrations of TDS in excess of 7,000 mg/l have been reported in a DWR monitoring well located 2 miles east of Nicholas.

This DWR well (AB-1-deep), is screened to sample groundwater at depths of 950-970 feet bgs. This well was intentionally completed at this depth to observe the groundwater quality below the base of fresh water in this portion of the WPCGMP area. In addition, historic groundwater quality data collected from wells located throughout much of Placer and northern Sacramento counties show TDS levels ranging from 160-336 mg/L, with the average concentration being 228 mg/L (USGS, 2001a). These data generally represent groundwater quality at depths less than 600 feet bgs.

Locally TDS data has been collected by Roseville and Lincoln in their respective groundwater production wells. TDS concentrations in Lincoln production wells range between 230 and 330 mg/L

(Lincoln, 2003). TDS concentrations in Roseville production wells range between 230 and 470 mg/L (Roseville, 2005).

**Iron and Manganese.** The Secondary MCLs for iron and manganese is 0.3 and 0.05 mg/L, respectively. A review of readily available data (described in the following paragraphs) indicates that iron and manganese concentrations in groundwater exceed the MCLs in parts of the region, possibly limiting the potable use of groundwater by the overlying agencies or, at least, requiring treatment of the groundwater prior to use.

Concentrations of iron in groundwater from several wells near the Sacramento International Airport exceed the Secondary MCL and elevated concentrations were also noted in DWR monitoring well AB-1-deep (DWR, 1997). Manganese has also been reported at elevated concentra-

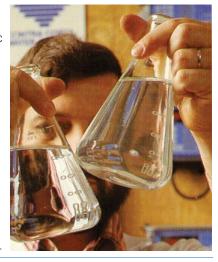
tions in the western portion of the WPCGMP area, within several wells located along the Sacramento River at reported concentrations exceeding 0.20 mg/L (DWR, 1997). Historic groundwater quality data in the region show iron concentrations ranging from 0.003-0.048 mg/L, with an average concentration of 0.012 mg/L, and manganese concentrations ranging from 0.0009 to 0.090 mg/L with an average concentration of 0.009 mg/L (USGS, 2001a). These data generally represent groundwater quality at depths less than 600 feet bgs.

Local iron and manganese groundwater quality data has been collected by Roseville and City of Lincoln in their respective groundwater production wells. Iron and manganese concentrations in City of Lincoln production wells range between non-detect and 1.8 mg/L and non-detect and 0.07 mg/L, respectively (Lincoln, 2003). Iron and manganese concentrations in Roseville production wells range between non-detect and 0.85 mg/L, and non-detect and 0.023 mg/L, respectively (Roseville, 2005).

**Arsenic.** The Primary MCL for arsenic is 0.010 mg/L, effective as of January 2006. A review of readily available data indicates that arsenic is present in groundwater throughout many areas of the region, and in some places exceeding the MCL. Overall, the extent of areas where arsenic exceeds the MCLs in groundwater

is believed to be sporadic and isolated and, currently, arsenic concentrations in groundwater are not significantly affecting the use of groundwater as a potable water supply.

Arsenic concentrations were observed at low to moderate levels in wells in the southwestern portion of the WPCGMP area.



Arsenic concentrations in some wells in this area neared 0.050 mg/L. Historic groundwater quality data in the region show arsenic concentrations ranging from 0.001-0.018 mg/L, with an average concentration of 0.05 mg/L (USGS, 2001a). These data generally represent groundwater quality at depths less than 600 feet bgs.

Local arsenic groundwater quality data has been collected by Roseville and Lincoln in their respective groundwater production wells. Arsenic concentrations in Lincoln production wells range between non-detect and 4.8 mg/L (Lincoln, 2003). Arsenic concentrations in Roseville production wells range between non-detect and 0.0035 mg/L (Roseville, 2005).

**Nitrate.** The Primary MCL for nitrate is 45 mg/L. A review of readily available data indicate that concentrations of nitrate in groundwater is well below the MCL throughout the region, therefore nitrate should not limit the use of groundwater as a potable water supply for overlying agencies.

Historic groundwater quality data in the region show nitrate concentrations ranging from 0.06-16 mg/L, with an average concentration of 5.9 mg/L (USGS, 2001a). These data generally represent groundwater quality at depths less than 600 feet bgs.

Local nitrate groundwater quality data has been collected by Roseville and Lincoln in their respective groundwater production wells. Nitrate concentrations in Lincoln production wells range from 5 to 10 mg/L (Lincoln, 2005). Nitrate concentrations in Roseville production wells range from 0.8 to 21 mg/L (Roseville 2005).

**Known "Principal" Plumes/Contaminated Sites.** Principal groundwater plumes or contaminated sites are known to exist within the WPCGMP area as discussed below, and shown on Figure 2-6. There are approximately 350 leaking underground storage tank sites [Central Valley Regional Water Quality Control Board (CVRWQB), 2005] and 40 other spill (SL) sites (DTSC, 2005) within Placer County that may have resulted in soil and/or groundwater contamination, however most of those sites pose little or no threat to the WPCGMP area.

The summaries provided in this section are based on information from one or more of the following sources; the City of Lincoln Groundwater Management Plan [Saracino, Kirby and Snow (SKS), 2003], the Roseville Sanitary Landfill Semi-Annual Water Quality Monitoring Report (CH2M Hill, 2005), the California Department of Toxic Substances' Control (DTSC) Site Mitigation and Brownfield Reuse Program website (DTSC, 2005), the Leaking Underground Storage Tank Quarterly Report [Central Valley Regional Water Quality Control Board (CVRWQB), 2005] and the Region 9 Cleanup Sites in California website (USEPA, 2005).

#### **Alpha Explosives**

Alpha Explosives is a 23-acre site located approximately five (5) miles north-northwest of the Lincoln and about 1,500 feet north of Coon Creek (SKS, 2003). Nitrate and perchlorate concentrations exceed drinking water MCLs in local groundwater and are the primary constituents of concern (COC) at the site. In a 1999 report by

Anderson Consulting Group, it was reported that a plume of nitrate impacted groundwater extended approximately 600 feet north and south and 1,300 feet west of this site. Since 2002, Alpha Explosives, with State Water Resources Control Board (SWRCB) oversight, has been operating a pilot-scale study to evaluate the potential for using bioremediation to treat the soil and groundwater.

#### **Roseville Sanitary Landfill**

The Roseville Sanitary Landfill encompasses 115 acres near Galleria Boulevard and Berry Street in Roseville. The groundwater underneath the landfill is impacted by a variety of organic and inorganic constituents. Of primary concern are TCE, tetrachloroethene (PCE), carbon tetrachloride, vinyl chloride and other VOCs. A corrective action program was implemented in 1994-1995 that included the construction of an engineered landfill cover and implementation of a groundwater monitoring program. Since the landfill was capped in December 1995, COC concentrations in the groundwater have generally decreased. Groundwater in the vicinity of the landfill flows west-northwest.

#### **Union Pacific Railroad – Roseville Railyard**

The 640-acre Union Pacific Railroad site is located near Roseville Road and Vernon Street in Roseville. At this site, the Diesel Shop Operable Unit is responsible for locomotive maintenance and repair, and related structures, and has been active for more than

80 years. COCs in the shallow groundwater at this site are diesel fuel and chlorinated solvents. The primary COCs are total petroleum hydrocarbons (TPH), with smaller amounts



of VOCs, semi-volatile organic compounds (SVOC) and lead. Contamination is mostly limited to the upper aquifer, although small amounts of PCE have been detected in the lower aquifer zone (150-160 feet bgs). It is not know if this site is the source of the PCE in the lower aquifer.

The Remedial Action Plan (RAP) for portions of the site was approved in 2003 and includes groundwater monitoring for COCs and natural attenuation. A RAP for the North Area of the site was approved in 2001 and includes groundwater extraction. The extracted groundwater is treated with an air stripper and on-site industrial wastewater treatment plant.

#### **Deluxe Cleaners**

Deluxe Cleaners is a former dry cleaning facility located on Vernon Street in Roseville. A preliminary assessment conducted in 1991 resulted in a No Further Action declaration under CERCLA. How-

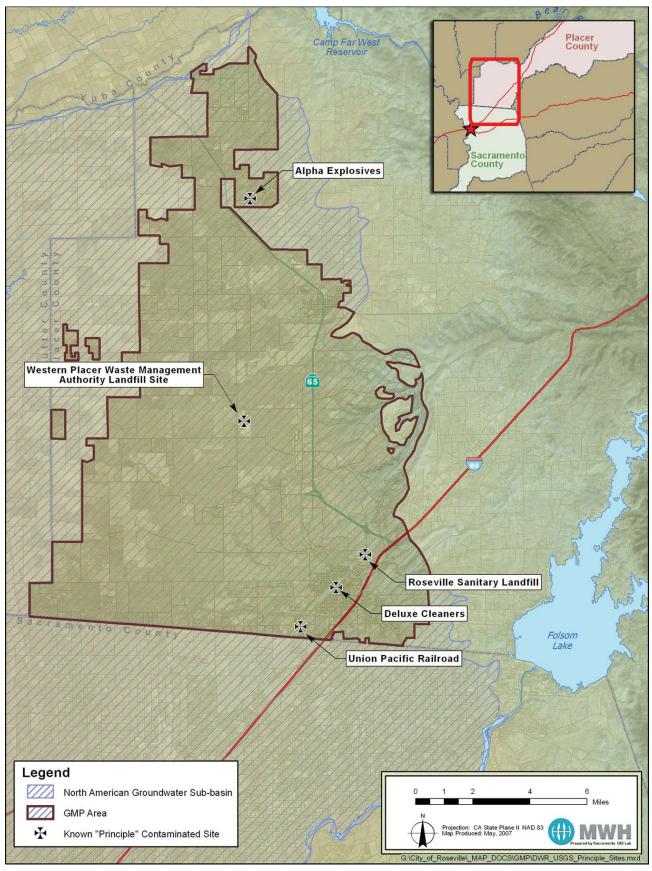


Figure 2-6 – Principle Contamination Sites

ever, since then high levels of TCE and PCE have been detected in the soil and groundwater underneath the site. In addition, TCE, PCE, and chloroform were detected in an emergency municipal well approximately 0.25 miles away from the site. As of 2004, the CVRWQCB had resumed investigations at the site.

### Western Placer Waste Management Authority Landfill Site (WPWMALS)

WPWMALS is an active landfill at the southeast corner of Athens and Fiddyment Roads within Placer County. The members of the WPWMA are City of Lincoln, City of Rocklin, City of Roseville, and County of Placer. A recent water quality analysis report indicates degradation of groundwater, first identified in 1995 with a corrective action plan approved by the RWQCB in 1997, continuing, and identifies constituents of concerns in the on-site monitoring wells.

#### **Other Sites**

There are approximately 350 leaking underground storage tank sites (CVRWQB, 2005) and 40 other spill (SL) sites (DTSC, 2005) within Placer County that may have resulted in soil and/or ground-water contamination, however most of those sites pose little or no threat to the WPCGMP area as they are small in scale and not considered "principal".

#### 2.2 SURFACE WATER CONDITIONS

This section provides a summary description of surface water conditions of the major rivers and streams within the, or of importance, to the WPCGMP area.

#### 2.2.1 American River

The American River drainage basin encompasses approximately 1,900 square miles. Folsom Reservoir is the principal reservoir in the basin with a storage capacity of 975,000 AF. Several smaller upstream reservoirs contribute another 820,000 AF of storage capacity. Nimbus Dam impounds Lake Natoma downstream of Folsom Dam and regulates releases from Folsom Reservoir to the lower American River. The entrance facilities to the Folsom South Canal are located along the south shore of Lake Natoma immediately upstream of Nimbus Dam. The mean annual flows in the lower American River is 3,300 cfs and the design capacity of the channel for flood flows is 115,000 cfs.

#### 2.2.2 Sacramento River

The Sacramento River drainage basin upstream of the WPC-GMP area encompasses approximately 23,500 square miles and produces an average annual runoff of about 17,000,000 AF as measured at the Freeport gauging station (below the confluence of the American River). Principal reservoirs controlling flows in the lower Sacramento River include Lake Shasta (4,522,100 AF), on the Sacramento river upstream of Redding, Trinity Lake (2,448,000 AF), which regulates deliveries made to the Sacramento from the Trinity River Basin, Lake Oroville (3,538,000 AF), and Folsom Reservoir (975,000 AF). Based on the 30-year record of data for the period 1968 through 1998, which spans a variety of water year types, individual monthly average flows have ranged from a low of 4,500



Confluence of Sacramento and American Rivers

cfs in October 1978 to a maximum of 87,000 cfs in January 1997. Overall the monthly flows of all 30 years range between 13,000 and 40,600 cfs, with the lowest flows occurring in October and peak flows in February. The 30-year average monthly flow during the wetter months of December through May is 32,200 cfs. During the typically drier months of June through November, the average monthly flow is 16,500 cfs.

#### 2.2.3 Feather River

The Feather River drains approximately 3,700 square miles starting at its confluence with the Sacramento River near Yuba City and expanding east and northeast to the western slopes of the Sierra Nevada. Oroville Dam is the primary reservoir on the river with a storage capacity of approximately 3,500,000 AF; the second largest reservoir is Lake Almanor (Canyon Dam) with a storage capacity of 1,300,000 AF. The total storage in the watershed is approximately 5,200,000 AF. Water level data recorded from 1968-1998 on the Lower Feather River shows average monthly streamflows ranging from 2,400 cfs in October to 8,200 cfs in January. The maximum average monthly streamflow was 40,700 cfs, recorded in January 1997.

#### 2.2.4 Bear River

The Bear River watershed encompasses approximately 292 square miles in Placer, Yuba and Sutter Counties. Camp Far West Reservoir is the principle reservoir on the river and has a storage capacity of approximately 104,000 AF, however two smaller impoundments (Lake Combie and Rollins Lake) exist in the upper watershed. Mean monthly flow rates, based on 76 years of data, range from approximately 1,200 cfs in February to 17 cfs in July. The highest mean monthly flow rate was 5,200 cfs in February 1986.

#### 2.2.5 Dry Creek

The Dry Creek watershed encompasses approximately 101 square miles in Placer and Sacramento Counties. The watershed in highly developed and the creek is subject to highly variable flows affected by runoff events. Mean monthly flow rates based on 1999-2004 data show that stream flows range from 228 cfs in February to

13 cfs in July. During the dry season, much of Dry Creek's flow is treated effluent from the Roseville/Dry Creek Wastewater Treatment Plant

#### 2.2.6 Auburn Ravine

The Auburn Ravine watershed drains approximately 79 square miles, originating north of the City of Auburn and ending at the confluence with the East Side Canal. The surrounding land use is generally urbanized in the upper reaches of the stream and rural in the lower reaches of the stream. During winter, the stream flows mostly originate as precipitation runoff or wastewater treatment plant discharges. In the summer, flows are provided by Yuba, Bear, and American River waters that are diverted to Auburn Ravine for irrigation deliveries, as well as wastewater treatment plant discharges. Peak winter flows are typically several hundred cfs and the average 100-year flow is estimated to be approximately 17,000 cfs. Annual flows are typically lowest in October, when irrigation demands decrease and rains are not yet adequate to supply sufficient flows.

#### 2.2.7 Coon Creek

The Coon Creek watershed drains an area that starts north and east of the City of Auburn and ends at its confluence with the East Side Canal. Coon Creek forms at the confluence of Orr Creek and Dry Creek west of Auburn. The watershed is urbanized in the upper basin near Auburn and Lincoln and rural on valley floor. Peak stream flows are typically several hundred cfs during the winter and the 100-year flow is estimated to be approximately 22,000 cfs. In the summer, upper basin flows are provided by diversions from the Bear River and lower basin flows (valley floor) are primarily agricultural return flows. Annual flows are typically lowest in October, when irrigation demands decrease and rains are not yet adequate to supply sufficient flows.

#### 2.3 SURFACE WATER QUALITY

The following subsection describes the surface water quality of the major rivers and streams within the, or of importance to the WPCGMP area.

#### 2.3.1 American River

Surface water quality in the American River is a function of the mass balance of water quality from tributary streams, diversions,

minor agricultural return flows, subsurface drainage flows, with other impacts resulting from permitted discharges from M&I sources, urban runoff and spills. In general, the quality of water in the American River is high from the river's



American River

headwaters to its confluence with the Sacramento River. It is low

in alkalinity, low in disinfection by-product precursor materials, low in mineral content, and low in organic contamination. Limited data also indicate that the water is low in microbial contamination from Giardia and Cryptosporidium. Turbidity levels in the American River tend to be higher in the winter than summer because of higher flows associated with winter storms.

#### 2.3.2 Sacramento River

Sacramento River water quality is largely influenced by a mass balance of water quality from upstream reservoir release operations, tributary flows (including the lower American River), agricultural runoff, subsurface drainage flows, and diversions, with other impacts resulting from permitted discharges from M&I sources, urban runoff and spills. In general, the quality of the Sacramento River is high in the vicinity of the WPCGMP area. There are moderate amounts of alkalinity and minerals and low levels of disinfection by-product precursors. Turbidity levels in the Sacramento River are higher during the winter and early spring months, usually associated with reservoir releases or runoff from storm events. There are very infrequent detections of organic chemicals, most of which are pesticides or herbicides from upstream agricultural operations. Data collected to date, indicate that there is a low prevalence of Giardia and Cryptosporidium in the river, with protozoa only detected sporadically and at very low concentrations.

The characterization of Sacramento River water quality in the vicinity of the North American River Sub-Basin is based on Sacramento River Watershed Sanitary Survey reports (Archibald and Wallberg, 1995 & Montgomery Watson, 2000).

#### 2.3.3 Feather River

Water quality in the Lower Feather River, downstream of Oroville Dam, is listed as a Section 303(d) impaired water quality segment. Diazinon, an organophosphorus insecticide, is the primary constituent of concern in the river. Mercury (from mining activities) and other pesticides are also present in the waters. The upper Feather River forks, upstream of Oroville Dam, generally suffer from elevated suspended sediment loads, especially during runoff events. The descriptions and summaries of the Feather River are partially based on the USGS's Water Quality in the Sacramento River report (Domagalski et. al., 2000).

#### 2.3.4 Bear River

Throughout the Bear River watershed, surface water quality is affected by upstream reservoir releases and diversions, and past mining activities. In the Lower Bear River basin, water quality is also impacted by agricultural runoff. The primary water quality concerns in Bear River stem from past mining activities, which have resulted in heavy metals such as mercury accumulating in the river sediment.

#### 2.3.5 Dry Creek

Surface water quality in Dry Creek is largely influenced by urban activities. During summer months, the water quality may closely resemble that of highly treated wastewater effluent as it provides a majority of the stream flow during that time. In the fall, water

quality likely contains trace metals, organic chemicals and other urban contaminants commonly found after the first rains of the season. The Dry Creek descriptions and water quality summaries are based upon information provided in the Dry Creek Watershed Coordinated Resource Management Plan (Placer County and Sacramento County, 2003).

#### 2.3.6 Auburn Ravine

Water quality in Auburn Ravine is affected by the quality of urban stormwater runoff, wastewater treatment plant discharges, failing septic systems along the ravine, and agricultural return flows, as well as the quantity of irrigation water, which acts to dilute these sources of constituent loading. Water quality analyses have revealed high concentrations of

heavy metals such as copper, lead and mercury. The source of these pollutants is primarily stormwater runoff, although wastewater treatment plant discharges are a significant source of copper and lead at times. Diazinon is the only pesticide detected in recent Auburn Ravine samples.



Coon Creek water quality is also influenced by urban stormwater runoff, wastewater treatment plant discharge, and agricultural return flows, as well as the quantity of irrigation water, which acts to dilute these sources of constituent loading. Analyses have shown that the water quality is most negatively affected by excess nutrients which result in depleted dissolved oxygen levels. The primary sources of the excess nutrients are wastewater treatment plant discharges and creek-side cattle grazing operations. Diazinon is the only pesticide detected in recent Coon Creek samples. The descriptions and water quality summaries of Auburn Ravine and Coon Creek are based on the Auburn Ravine/Coon Creek Ecosystem Restoration Plan (Placer County, 2002).

#### 2.4 WATER USE

This section provides a description of plan participant's water use. Current and future water demands and surface water supplies, groundwater supplies and recycled water supplies are presented. **Table 2-1** provides a summary of plan participant's urban water use in the WPCGMP area and **Figure 2-7** provides projected annual water demands

#### 2.4.1 ROSEVILLE

The following sections are a summary of Roseville's water use.

#### 2.4.1.1 Demands

In 2004, Roseville's total water demand was 32,612 AF. Roseville's projected water demand is expected to increase to 55,792 AF in 2025, which is shown in **Figure 2-7**.



Auburn Ravine Diversion

#### 2.4.1.2 Surface Water Supplies

**Existing Conditions.** Roseville currently has a surface water supplies of up to 66,000 AF/year diverted from Folsom Lake. These supplies include a 32,000 AF/year Central Valley Project (CVP) contract with the U.S. Bureau of Reclamation, a 10,000 AF/year contract with PCWA with 20,000 AF/year of options, and a 4,000 AF/year contract with SJWD which is available in Water Forum designated wet and normal years.

Proposed and existing Roseville and other plan participant water facilities are shown on **Figure 2-8**.

**Future Conditions.** Future considerations for Roseville include the improvements of its facilities to maximize the use of all of its surface water supplies.

#### 2.4.1.3 Groundwater

**Existing Conditions.** Currently, Roseville does not utilize groundwater, but is pursuing opportunities to use banked groundwater supplies for back up, and peak daily demands. Roseville has four groundwater production wells (Atlantic, Oakmont, Darling Way, and Diamond Creek), three of which are ready for aquifer storage and recovery (ASR) operations with one additional well (Woodcreek North) scheduled to be completed by summer 2008 (**Figure 2-8**). A summary of Roseville's and plan participant production municipal wells is presented on **Table 2-2**.

**Future Conditions.** Roseville is implementing conjunctive use projects including their ASR program at the Diamond Creek Well and evaluating the feasibility of direct and in-lieu groundwater recharge as part of the Dry Creek Recycled Water Groundwater Recharge Feasibility Study in an effort to maximize the yield of both their surface water and groundwater supplies.

#### 2.3.1.4 Recycled Water

**Existing Conditions.** Roseville owns and operates two regional waste water treatment plants (WWTP): Dry Creek and Pleasant Grove WWTP; both facilities provide full Title 22 (tertiary) treatment. Plant inflows are from within Roseville City limits, SJWD,

and part of PCWA Zone 1. Roseville owns and operates a recycled water distribution system for landscape irrigation within the city limits (Roseville, 2000). Delivered in ubiquitous purple pipes, the city delivered 2,045 acrefeet of recycled water in 2005.

**Future Conditions.** It is anticipated that Roseville will continue to expand its system to more fully utilize and

optimize recycled water supplies. Treated effluent that exceeds Roseville's recycled water demands could potentially be made available for in-lieu groundwater recharge purposes. The Dry Creek Recycled Water Groundwater Recharge Feasibility Study identifies and evaluates potential opportunities to recharge groundwater in Placer and Sacramento Counties through application of recycled water as described in Section 1.5.1.4.



#### 2.4.2 LINCOLN

The following sections provide a summary of Lincoln's water use.

#### **2.4.2.1** Demands

In 2004, Lincoln's total water demands were 7,539 acre-feet. With anticipated expansion of the city limits in the 2006 Draft General Plan EIR, demand is projected to reach 53,000 acre-feet (Environmental Science Associates (ESA), 2006).

#### 2.4.2.2 Surface Water

**Existing Conditions.** Lincoln is located in PCWA's Zone 1 service area. Surface water deliveries are purchased from PCWA, which are treated at the Sunset and Foothill Water Treatment Plants. In 2004, Lincoln purchased 7,241 acre-feet of surface water from PCWA. Lincoln also purchases raw water from Nevada Irrigation District (NID).

**Future Conditions.** Lincoln will primarily meet future demands with surface water from PCWA and NID. Recycled water and groundwater will also be used to supplement these primary sources.

Table 2-1. Urban Water Use in the WPCGMP Area

Water Purveyors	Surface Water Supply/Contract Amounts		Treated Water D	emand (AF/year)	Currently Groundwater	
			2004	Projected 2025	Pumping?	
PCWA	PG&E	100,400			No	
	MFP	65,000 <sup>(1)</sup>	00.005	70.004		
	CVP	35,000	38,035 (Zone 1 only) <sup>(2)</sup>	73,994 (Zone 1 and 5) (2)		
	Total	200,400	(Lone 1 only)	(Lone 1 and 0)		
City of Roseville	MFP transfer from PCWA	30,000			No <sup>(4)</sup>	
	CVP	32,000	(3)	(3)		
	San Juan	4,000	32,612 <sup>(3)</sup>	55,792 <sup>(3)</sup>		
	Total	66,000				
City of Lincoln	PCWA	34,000 <sup>(5)</sup>		53,000(6)	Yes <sup>(7)</sup>	
	NID	12,000 <sup>(5)</sup>	7,539 <sup>(6)</sup>			
	Total	46,000 <sup>(5)</sup>				
CAW West Placer Service Area	Total Treated Water Purcha	sed from PCWA	0(8)	15,748 <sup>(9)</sup>	No	

mgd – million gallons per day WTP – water treatment plant PG&E - Pacific Gas & Electric CVP - Central Valley Project MFP- Middle Fork American River Project

- (2) Source: Placer County Water Agency 2005 Urban Water Management Plan
- (3) Source : City of Roseville 2005 Urban Water Management Plan
- (4) Roseville has three backup supply wells to meet potential peak demands only. These wells are equipped for aquifer storage and recovery. Additional wells may be operational by the end of 2008.
- (5) Source: City of Lincoln 2006 General Plan Update
- (6) Source: City of Lincoln 2005 Urban Water Management Plan. Volume includes recycled water supplies. Estimated through 2030.
- (7) City of Lincoln wells operate as backup and emergency supply and to manage daily peak demands (goal is to average 10% of annual demand)
- (8) Currently unknown value assumed to be zero
- (9) Total water demand for West Placer Service Area at build out (year 2020) based on demands provided in the Water System Comprehensive Planning Study (2006)

<sup>(1)</sup> PCWA's entitlement is equal to the total of the Middle Fork American River Project (MFP) entitlement (120,000 AF/year) less transfers to City of Roseville and San Juan Water District (30,000 and 25,000 AF/year, respectively). The temporary 29,000 AF/year of MFP transfer currently under contract to Sacramento Suburban Water District located in Sacramento County is included in the 120,000 AF/year amount.

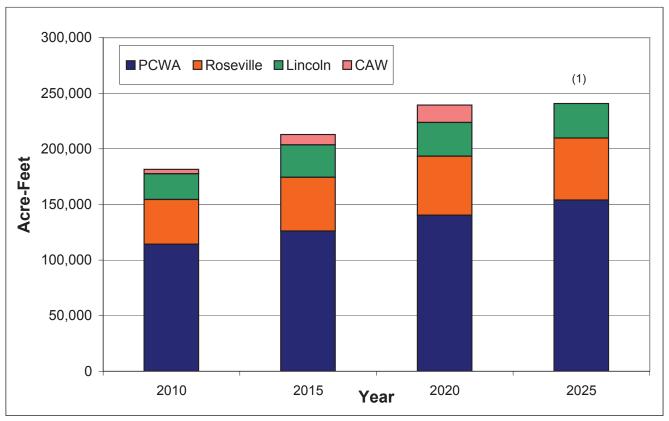


Figure 2-7 - Projected Water Demands (treated and raw water)

#### 2.4.2.3 Groundwater

**Existing Conditions.** The City utilizes groundwater from five wells to provide emergency, back up, and peaking supplies as a source for its backup water supply. Liquid chlorine (sodium hypochlorite) is added to the pumped groundwater at the well site for preventative disinfection. All well sites have 10,000-gallon pressure tanks. In 2004, Lincoln pumped 298 acre-feet of groundwater.

Future Conditions. The City has plans to increase the number of municipal water supply wells in order to increase water supply reliability, provide emergency supplies and help meet peak demand. Studies by Spectrum-Gasch (1999) and Boyle Engineering (1990) show that groundwater resources are available in the Lincoln area. The City is currently completing additional groundwater investigations. The results of these investigations will be analyzed and used to help determine optimal well spacing and pumping schedules. The City estimates additional wells will be built. Geologic logging, bore hole geophysical logging and aquifer stress tests have been and will continue to be conducted as the City expands its well capacity.

#### 2.4.2.4 Recycled Water

Lincoln recently completed a new Wastewater Treatment and Reclamation Facility (WWTRF) for the purpose of treating wastewater generated within the City.

**Existing Conditions.** The 3.3 MGD WWTRF began operation in 2004 and generated an initial 2.4 MGD of average dry weather flow with expansion capacity to 12 MGD. Flow is expected to increase to 6 MGD over the next 5 to 10 years. The WWTRF replaced the former Waste Water Treatment Plant, which is being decommissioned. Effluent from the WWTRF undergoes treatment processes that include oxidation, coagulation, clarification, filtration, and disinfection with ultraviolet light.

Recycled water from the WWTRF is currently used for irrigation on approximately 400 acres at three sites, including:

- Approximately 170 acres at West Placer Waste Management Authority (Lastufka) property, south of the WWTRF
- 2. 105 acres at Antonio Mountain Ranch, south of the WWTRF
- 3. 117 acres at the Warm Springs site, west of the WWTRF

During the non-irrigation season, effluent is stored for future use. Areas that currently receive recycled water are capable of using approximately 400 million gallons per year in normal precipitation conditions.

The WWTRF is capable of producing recycled water that meets DHS requirements in Title 22 for unrestricted reuse. Projects currently in design will allow construction of the necessary distribution system to deliver additional recycled water to users within the city limits by 2008. It is anticipated that these new users may

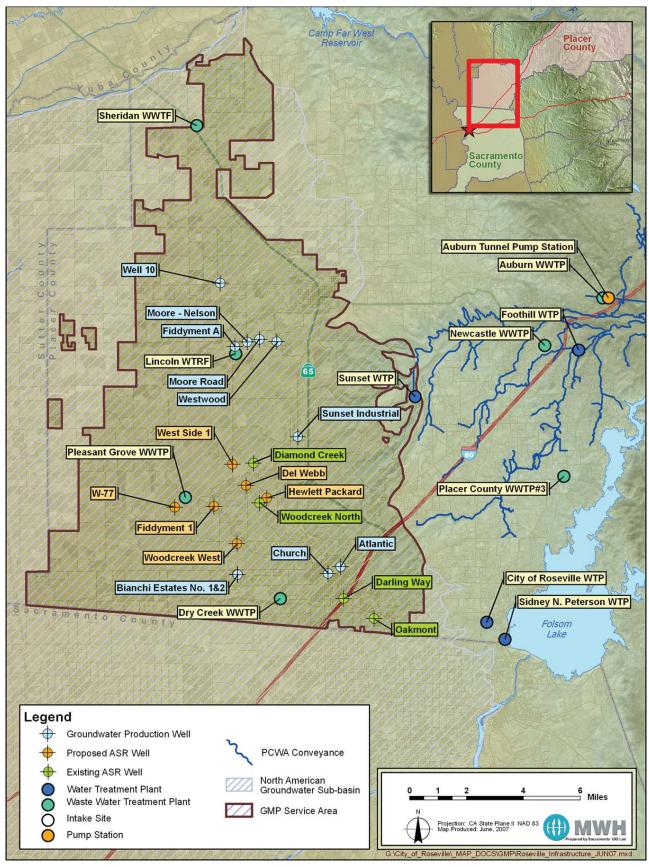


Figure 2-8 – Existing Roseville/Lincoln/PCWA/CAW Facilities

account for as much as 1,400 AF/year of recycled water by 2010 (including irrigation of the proposed Highway 65 Bypass right of way).

Effluent produced by the Lincoln WWTRF is of sufficient quality to allow unrestricted reuse, including the farming of salinity sensitive crops.

**Future Conditions.** Further, the City is in the process of updating its General Plan and new build-out wastewater flow projections are estimated to be approximately 22 to 24 MGD. The Placer Nevada Wastewater Authority (PNWA), comprised of western Placer and Nevada County public agency jurisdictions, is considering expansion of the Lincoln WWTRF as a regional wastewater treatment and reclamation facility. If implemented for this purpose, the total average wastewater flow at an expanded WWTRF could be as much as 32 MGD, at build-out.

The goal of the Lincoln reclamation project is to utilize all reclamation water produced by the WWTRF. The 2002 Reclamation Study competed during the planning phase for the WWTRF improvements revealed nearly 25,000 AF/year of potential industrial and agricultural demand for recycled water in the greater Lincoln area. Some of these users have been incorporated into the Reclamation Master Plan and others may be included in the future as wastewater flows to the WWTRF increase.

#### 2.4.3 PCWA

The following sections are a summary of PCWA's water use.

#### 2.3.3.1 Demands

Currently, PCWA provides treated drinking water for urban areas and raw water for agricultural irrigation and rural uses.

#### 2.4.3.1.1 Urban

Treated water customers include M&I entities primarily located within Zone 1. Urban water demands were approximately 28,000 AF in 2000. As part of PCWA's Water Systems Infrastructure Plan (WSIP), the 2005 treated water demand was projected to be approximately 35,000 AF. Projections suggest that treated water demand will increase to 81,380 AF by 2030 (PCWA, 2003). Existing M&I treated water customers receive water from four WTPs operated by PCWA (two are located in the Upper Zone 1 system and two are in the Lower Zone 1 service area). The four WTP's have a total treatment capacity of 78 MGD.

#### 2.4.3.1.2 Agricultural

Raw water customers generally obtain water service for irrigation, livestock, and, more recently, golf courses and other public land-scaped areas. Raw water customers obtain water service through a series of canals and waterways.

Table 2-2. Summary of Plan Participant Production Wells in the WPCGMP Area

Owner	Well Name	State Well ID	Installation Date	Pump Capacity (gpm)	Well Depth (ft bgs)	Boring Depth (ft bgs)	Well Diameter (in)	Operational Status
City of Roseville	Diamond Creek	11N06E17D003M	11/6/2002	2,700	460	502	20	Emergency M&I supply
	Woodcreek North	11N06E20	9/28/2006	2,000 (est.)	530	540	20	Estimated Pump Station Completion June 2008.
	Fiddyment 1		5/1/2006	1,800 (est.)	513	520	18	Not yet in service. Awaiting pump station construction
	W-77		4/1/2006	1,800 (est.)	526	531	18	Not yet in service. Awaiting pump station construction
	Atlantic St.		1947	800	290	290	14	Emergency M&I supply
	Church St.	10N06E02B01	1947	800	245	245	14	Emergency M&I supply
	Oakmont	10N07E18D	12/18/1977	2,000	356	370	16	Emergency M&I supply
	Darling Way	10N06E12M01	5/26/1958	1,000	303	304	14	Emergency M&I supply
City of Lincoln	Well 2		1984	950	275	285	14 (to 120 ft) 6 (120 to 274 ft)	Out of service. 6" well screen installed in 1990. Equipment modifications to be completed 2006 will increase pump capacity to 950 gpm.
	Well 4		7/14/1990	500	320	320	16 (to 280 ft) 8 (278 to 320 ft)	Out of service. Originally drilled to 290 and constructed to 284 ft. Well deepened to 320 and 8" screen installed below 280 ft. Excessive sand in the discharge. To be replaced by Well 10.
	Well 6 (Westwood)	12N06E28		800			16	Operational
	Well 7 (Moore Road)	12N06E20	9/27/2001	1,000	300	309	16	Operational
	Well 8 (Fiddyment A)	12N06E30	9/1/2004	1,400	317	347	16	Operational
	Well 9 (Moore-Nelson)	12N06E29		1,800	340	350	16	Not yet in service. Pump station construction in progress.
	Well 10							Currently in design, Scheduled for construction in 2006.
	Bianchi Estates #11	10N06E05L03M	9/24/1979	550	400		12	Emergency M&I supply
PCWA	Bianchi Estates #21	10N06E05L04M	10/12/1979	500	335		12	Emergency M&I supply
	Sunset Industrial	11N06E09H01M	Aug-64	800	198		14	Emergency M&I supply

<sup>&</sup>lt;sup>1</sup> Supply has been replaced with surface water (2003)

<sup>- -</sup> Information Not Available

Agricultural water demand in the WPCGMP area is equal to the summation of the product of irrigation demand and cropped area for each crop or use type. This demand changes with time given the hydrologic wet/dry conditions, and the amount of evapotranspiration that occurs with each crop or use type that can be accounted for on a daily basis. PCWA estimates the Zone 5 agricultural demand in 2030 to be 70,000 acre-feet.

#### 2.4.3.2 Surface Water

**Existing Conditions.** PCWA's surface water entitlements include: water purchased from Pacific Gas and Electric Company (PG&E) from its Drum-Spaulding Project (100,400 AF/year), MFP water (120,000 AF/year), and CVP contract water (35,000 AF/year). PCWA has transfer agreements<sup>3</sup> with Roseville, San Juan Water District, and Sacramento Suburban Water District for 30,000, 25,000, and 29,000 AF/ year of MFP water, respectively. PG&E water, which has been fully utilized, is diverted along PG&E canals at various diversion points. MFP water is diverted at the American River Pump Station (ARPS) near the Auburn Dam site, downstream of the confluence of the North and Middle Fork of the American River. PCWA currently does not have facilities to exercise its CVP entitlement; the authorized point of diversion of which is at Folsom Lake. Contract entitlement amounts described above are for normal and wet conditions; under dry and critical conditions, PCWA water supplies are subject to curtailment, and alternative water supplies or cutbacks in raw water deliveries will be necessary to meet demands.

PCWA also shares raw water canal capacity with NID and South Sutter Water District. Through interim purchase agreements, PCWA has obtained temporary water supplies from these agencies, purchasing a few thousand acre-feet per year on a caseby-case basis in the recent past. However, these purchases are not considered permanent water supplies.

**Future Conditions.** To meet its future demands PCWA will continue to rely on surface water, groundwater, and recycled water.

#### 2.4.3.3 Groundwater

**Existing Conditions.** Currently PCWA does not pump groundwater to an appreciable extent. Groundwater can be pumped at the Sunset Industrial Park as a backup supply, however, elevated levels of silica make this practice a 'last resort' situation. Also, isolated portions of the Martis Valley (outside the WPCGMP area) are served by small amounts of groundwater to meet local needs.

Most of the agricultural pumping is met by self-supplied groundwater in PCWA's Zone 5.

**Future Conditions.** PCWA is evaluating conjunctive use projects including PCWA's Western Placer County Groundwater Storage Study to possibly develop alternatives for increasing groundwater recharge and storage with conjunctive use operations in western Placer County. This study is described in further detail in Section



PCWA Canal

1.5.3.2. PCWA as part of its water connection charge projects has developed a groundwater supply program to serve at times of emergencies, backup to the surface water system and peaking.

#### 2.4.3.4 Recycled Water

**Existing Conditions.** PCWA currently does not own or operate wastewater treatment or recycled water distribution facilities. Only the cities of Auburn, Lincoln, and Roseville have their own WWTP for their respective city limits; the remaining Zone 1 wastewater goes to the two regional WWTPs located in Roseville.

**Future Conditions.** In the future PCWA may consider utilizing recycled water from Roseville or Lincoln for agricultural and/or groundwater recharge uses.

#### **2.4.4** CAW

The following sections are summary of CAW's West Placer Service Area's water use.

#### **2.4.4.1** Demands

Existing demands within the California American Water Company's (CAW) West Placer Service Area are entirely for M&I and include the Dry Creek/West (Placer Vineyards) region, Dry Creek/East region, and a portion of the Curry Creek region. CAW demands are

based on projected land use changes in the West Placer Service Area from rural to urban as part of a residential master planned communities

The West Placer Service Area accounts for approximately 1,100 of the estimated 56,800 total active customer connections in the Sacramento District of CAW (CAW, 2006). The current population of customer connections of the CAW West Placer Service Area is 3,041 and projected growth based upon land use is expected to reach approximately 24,500 to 28,000 residential dwelling units (DU) according to growth scenario (SACOG, 2006).

#### 2.4.4.2 Surface Water

**Existing Conditions.** Currently, CAW uses surface water supplied by PCWA and conveyed through Roseville's distribution system as the sole source of water in the service area. In the future, treated surface water will be delivered to the service area from the future Sacramento River Diversion facility. The Sacramento River Diversion facility is intended to allow withdrawals from the Sacramento River in order to relieve some of the withdrawals currently made from the American River. After construction of the facility, the proposed water supply will be part of PCWA's pending amendatory CVP contract with USBR for 35,000 AF/year.

**Future Conditions.** In the future CAW will have an increased demand for surface water which is anticipated to be provided by PCWA

#### 2.4.4.3 Groundwater

**Existing Conditions.** Currently groundwater is not used within the CAW West Placer Service Area. This existing condition is a result of a 1995 franchise agreement with Placer County that mandates no use of groundwater to prevent overdraft due to lack of policy control. CAW is of the understanding that this franchise agreement predates more recent conjunctive use planning studies and technical data that had enabled water agencies to plan to use groundwater conjunctively while sustaining a healthy groundwater basin.

Future Conditions. In the future, dry year supply is projected to be made up of surface water and groundwater. The contract between CAW and PCWA which does not allow use of groundwater in the West Placer water system will need to be clarified for future dry year supply. Although CAW intends to use surface water supplies to meet future demands, CAW also intends to supplement surface water supplies with groundwater using conjunctive use techniques for peaking and

backup water supply reliability.

#### 2.4.4.4 Recycled Water

**Existing Conditions.** CAW currently does not own or operate wastewater treatment or recycled water distribution facilities. However, Roseville supplies recycled water to major golf course (Morgan Creek Golf Course) within the West Placer Service Area.

**Future Conditions.** Recycled water will continue to be available within the West Placer Service Area from Roseville. Additional recycled water use may be investigated.



<sup>&</sup>lt;sup>3</sup> Sacramento Suburban Water District has a temporary transfer agreement with PCWA to receive up to 29,000 AF/year of MFP water. In the WSIP, it is anticipated that PCWA will take back the MFP water to meet its buildout demand.

SECTION 3

## **Management Plan Elements**



#### SECTION 3

## **Management Plan Elements**

The elements of this WPCGMP include an overall goal, a set of definable basin management objectives (BMOs), and a series of plan components that discuss and identify the actions necessary for meeting the goal and objectives (**Figure 3-1**).

The purpose of this section is to describe the actions set forth for management of the groundwater basin. The term "BMO" is defined in some detail under differing conditions where impacts may occur to the WPCGMP area if the BMO criteria are exceeded. The BMOs are intended to be specific enough to hold the management of the basin to quantitative values (where possible) but flexible so as to be adaptive to increased knowledge of how the groundwater basin behaves over time as better monitoring data is collected.

#### 3.1 GROUNDWATER MANAGEMENT GOAL

The overarching goal of this WPCGMP is to maintain the quality and ensure the long term availability of groundwater to meet backup, emergency, and peak demands without adversely affecting other groundwater uses within the WPCGMP area.

#### 3.2 MAKE UP OF A BMO

A BMO has four main components: 1) specific objective(s) that can be scientifically measured with some level of confidence, 2) a clearly defined monitoring program designed to collect data necessary to evaluate the BMO's performance, 3) a reporting method of representing monitored data to identify success or forewarn of challenges with the management of the groundwater, and 4) programs and/or actions that are available to remedy a problem, if one is determined to exist. Each of these are explained in greater detail with references to sections in the Water Code, citations from other GMPs completed in the Sacramento Valley, and the California Groundwater Management Guidelines (Groundwater Resources Association of California, Second Edition, 2005).

The California State Water Code § 10753.7 (a) (1) states that the required components of management objective for the basin follow the excerpt below:

(1) Prepare and implement a groundwater management plan that includes basin management objectives for the groundwater basin that is subject to the plan. The plan shall include components relating to the monitoring and management of groundwater levels within the groundwater basin, groundwater quality degradation, inelastic land surface subsidence, and changes in surface flow and surface water quality that directly affect groundwater levels or quality or are caused by groundwater pumping in the basin.

This portion of the Water Code implies that BMO's need to have sufficient specificity in numerical objectives so as to be scientifically defensible in its implementation through monitoring and management programs. For example, one objective might be a BMO that states that groundwater elevations will not fall below 100 feet below the ground surface in any location within the basin (example only). A monitoring program can be developed to measure groundwater elevations at key locations in the basin twice a year. This data is entered into a Database Management System (DMS) that compares the measured results to the BMO for a determination of performance. A report is generated that allows the WPCGMP governance body¹ of the groundwa-



ter basin to evaluate the data, make a judgment on the level of concern, and, if needed, perform certain functions to remedy the problem (i.e. implementation of specific programs or changes to daily pumping operations).

Based on Section 2 of this WPCGMP, what we understand about groundwater and its hydrologic properties, and an understanding that land use conditions change from year to year applying differing stresses on the aguifers, the remedy to a particular problem may or may not be in the area where the detected problem occurs. A good example is the regional cone of depression in the southern portion of the WPCGMP area. The regional cone is dependent on pumping throughout the north portion of Sacramento County to a certain degree, and pumping throughout the southern WPCGMP area. So a problem in one management area, may require actions in another management area to remedy the situation.

As mentioned earlier, the BMO's need to be specific and measurable. For this reason, the selection of BMO's and the values attached to each have to: 1) be evaluated on the reasonableness of measuring the BMO's performance, 2) have the ability to provide clear and continuous reporting on the BMO's performance, and 3) indicate action items that are necessary in meeting the BMO. For this reason, considerable thought and significant attention needs to be given to each BMO in this WPCGMP to satisfy these criteria.

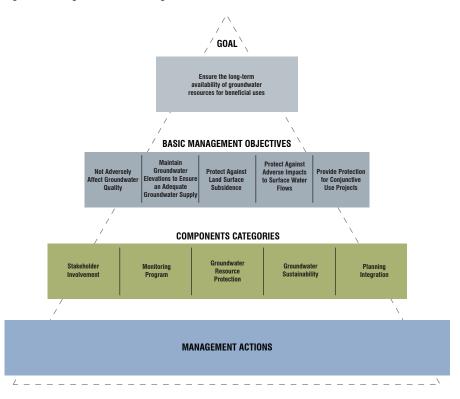
#### 3.3 BASIN MANAGEMENT OBJECTIVES

To meet the goal stated above, the plan participants have adopted five BMOs. These BMOs include the following:

## 3.3.1 BMO #1 – Management of the groundwater basin shall not have a significant adverse affect on groundwater quality.

BMO #1 is intended to preserve overall groundwater quality by stabilizing groundwater contamination, avoiding known contaminated areas, and protecting recharge areas. Currently there is insufficient data to allow the plan participants to understand all of the groundwater quality characteristics for the entire WPCGMP area. However, what is understood about groundwater quality in the WPCGMP area is groundwater that is analyzed for potential supply for potable use by Roseville and Lincoln meets Department of Health Services (DHS) public health criteria.

Figure 3-1 – Organization of Management Plan Elements



Within the WPCGMP area, there are documented occurrences of isolated groundwater contamination. The plan participants will make use of groundwater within the basin that is not hindered by contamination, and that such use does not cause or exacerbate degradation of the quality of the resource either at the contamination sites or from naturally occurring contaminants present in the groundwater. Where groundwater contamination is currently documented or if it occurs in the future, the plan participants will coordinate and cooperate with appropriate State and Federal regulatory agencies and with other responsible parties. The plan participants will pursue all actions within their powers that result in the containment and eventual remediation of the contaminant.

Natural recharge of groundwater occurs primarily from percolation of irrigation water, infiltration along creeks and drainages, infiltration of precipitation, and subsurface flow. Protection of natural recharge is an important element of this BMO.

Implementation of this BMO will allow for a better understanding of groundwater quality in the WPCGMP area and how changes in groundwater quality may be influenced by management practices and implementation of conjunctive use programs. As additional data from the monitoring program becomes available, this BMO will be more clearly defined and corrective actions established. By meeting this BMO, the plan participants will not adversely affect groundwater quality for the benefit of basin groundwater users.

<sup>&</sup>lt;sup>1</sup> A proposed governance body is discussed in Section 4.



# 3.3.2 BMO #2 – Manage Groundwater Elevations to ensure an adequate groundwater supply for backup, emergency, and peak demands without adversely impacting adjacent areas.

Over the past several decades, extensive groundwater pumping by agriculture, and more recently by urban development, has resulted in a persistent cone of depression in the southern Placer and northern Sacramento County areas. Due to the recent import of surface water into Sacramento County, southern Placer County groundwater elevations have stabilized at or near the cone of depression and some areas have recovered (See Hydrograph 10N06E0C001M in **Figure 2-5**). Results of the Sacramento County Water Forum Agreement (WFA) studies indicate that extensive lowering the aquifer can have adverse impacts on all groundwater users in the basin ranging from increased energy costs, to the need to deepen existing private and public wells, or even construction of new wells.

Full implementation of the conjunctive use programs in the basin may result in short term water levels being drawn down below previous historic lows, (this is a result of additional groundwater extraction during the drier and driest years). The intent of this BMO is to ensure an adequate groundwater supply by monitoring groundwater elevations within the WPCGMP area to maintain an acceptable "operating range." The future governance body will develop operation criteria for the future management of elevations to insure fluctuations during these times be quantified and then minimized so that overall groundwater elevations in the WPCGMP area do not adversely affect the availability of groundwater.

## 3.3.3 BMO #3 - Participate in State and Federal Land Surface Subsidence Monitoring Programs.

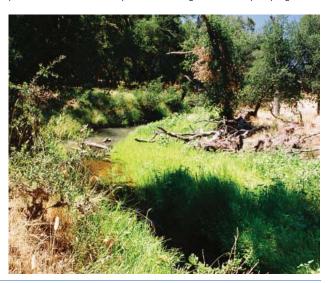
Land subsidence can cause significant damage to essential infrastructure. As with groundwater quality, historic land surface subsidence data within the WPCGMP area is limited. However, the general understanding, based on DWR and National Geodetic Survey data is that historic land surface subsidence has been minimal in the WPC-GMP area, with no known significant impacts to existing infrastructure. Given the historical trends, the potential for future land surface subsidence from groundwater extractions in the WPCGMP area appears remote. However, the plan participants intend to participate in State and Federal Land Surface Subsidence Programs.

DWR has recently begun developing a program to monitor subsidence in the Sacramento Valley. This program referred to as the Sacramento Valley - Land Surface Elevation Monitoring Program is in the beginning stages as DWR is gathering local support. DWR is actively seeking partners interested in cooperatively developing a land surface elevation network of Global Positioning System (GPS) monuments. Current project partners include Yuba County Water Agency and Butte, Glenn, and Tehama Counties. Participation ranges in form from financial assistance to in-kind staff hours. WPCGMD participants have agreed to join the DWR effort.

## 3.3.4 BMO #4 - Protect Against Adverse Impacts to Surface Water Flows in Creeks and Rivers due to groundwater pumping.

The intent of this BMO is to protect against adverse impacts to in stream water quality and quantity resulting from interaction between groundwater in the basin and surface water flows in the American and Sacramento River due to groundwater pumping.

At the present time, the flow regime is such that groundwater is not discharging to the river systems (i.e., rivers in the region are termed as losing streams to the groundwater) in the WPCGMP area. It is the intent of this WPCGMP that controllable operations of the groundwater system do not negatively impact the water quality and quantity of the area's rivers and streams regardless of potential stream flow depletion due to groundwater pumping or



an accretion due to artificial groundwater recharge. The adopting governance body of this WPCGMP will seek to gain a better understanding in cooperation with SGA and others of potential impacts of adverse groundwater and surface water interactions.

## 3.3.5 BMO #5 – Ensure Groundwater Recharge Projects Comply with State and Federal Regulations and protect beneficial uses of groundwater.

With the implementation of conjunctive use projects through direct artificial recharge using spreading basin, field flooding or injection wells (i.e. ASR projects²), protection of groundwater users of artificial recharged water is currently of key regulatory importance. For this reason, the intent of this BMO is to recognize that the governance body will comply with appropriate State and Federal regulations when implementing groundwater recharge projects.

#### 3.4 WPCGMP COMPONENTS

The WPCGMP includes a variety of components that are required by CWC § 10753.7, recommended by DWR Bulletin 118 (2003), optional under CWC § 10753.8, and other components that the plan participants have already begun. These components can be grouped into five general categories: 1) stakeholder involvement, 2) monitoring program, 3) groundwater resource protection, 4) groundwater sustainability, and 5) planning integration. Each category and its components are presented in this section. Under each component is a discussion, proposed actions, and identification of the objectives toward which the component is directed.

#### 3.5 COMPONENT CATEGORY 1: STAKEHOLDER INVOLVEMENT (REQUIRED)

The management actions taken by the future governance body may have a wide range of impacts on a broad range of individuals and agencies that ultimately have a stake in the successful management of the basin. The local consumer may be most concerned about water rates or assurances that each time the tap is turned a steady, safe stream of water is available. To the industrial, agricultural, or agricultural-residential private well owner, they want to make sure their wells are safe from dewatering and degradation of water quality, and that energy costs do not increase significantly. To the environmental community and non-governmental organizations, they will want assurances that management of the basin does not create adverse environmental affects in the region. To large State and Federal water resource agencies, the degree to which the actions taken under this WPCGMP can achieve local supply reliability and further banking and exchange programs provides opportunities for State and Federal water programs to meet

statewide needs, particularly in drier years.

To address the needs of all the above stakeholders, this WPCGMP pursues several means of achieving broader involvement in the management of the WPCGMP area. These include: (1) involving members of the public and other interested parties, 2) involving other agencies within and adjacent to the WPCGMP area, (3) using advisory committees for development and implementation of the WPCGMP, (4) developing relationships with state and federal water agencies, and (5) pursuing a variety of partnerships to achieve local supply sustainability. Each of these is discussed further below.

#### 3.5.1 Involving the Public

Groundwater in California is a public resource, and the WPCGMP Technical Review Committee (TRC) is committed to involving the public in the development and implementation of the WPCGMP. The primary reason for the WPCGMP is to "to maintain the quality and ensure the long-term availability of groundwater to meet backup, emergency, and peak demands without adversely affecting other groundwater uses within the WPCGMP area." In order to meet this goal, the plan participants must intelligently manage current and future use of the shared groundwater Sub-basin underlying their city limits/service areas, respectively. To effectively manage this resource the plan participants must have public input and, ultimately, public approval at each decisive step. The plan participants understand that this can be accomplished only when the public is continually involved in the decision-making process.



May 2007 celebration of Roseville's first ASR well

The development of the WPCGMP was completed in many stages as entities interested in the development of this plan were added periodically and participated in the TRC. Roseville initially intended to create a GMP that covered an area comprised of their city limits. Soon after, PCWA agreed to develop a joint plan with Roseville. This partnership expanded the study boundaries to include that portion of PCWA's service area which is located within the Sub-

<sup>&</sup>lt;sup>2</sup> In particular for ASR projects within the Central Valley, regulatory agencies are focusing on projects where chemically treated potable water is used as the source water used for recharge. Chemical treatment with the use of chlorine, when in the presence of dissolved organic carbon, causes the formation of disinfection by-products such as Trihalomethanes (THM). THMs routinely sampled and analyzed in potable source water, used for recharge, are at levels well below public drinking water criteria established DHS. However, based on the regulatory concerns, it is the intent of this WPCGMP to provide controls over who uses artificially recharged groundwater. These controls include monitoring the proposed position of new wells when being drilled into potential artificial recharged groundwater "bubble" areas and areas in a down gradient groundwater flow directions or providing surface water deliveries for preexisting groundwater users. For this reason, the adopting governance body of this WPCGMP will work in coordinately with State and Federal regulators on conjunctive use projects within the study area to protect beneficial uses of groundwater.

basin. In addition to Roseville, the new study area includes the City of Lincoln and portions of the City of Rocklin. This expansion led to the project being named the WPCGMP.

In recognition that effectiveness of the WPCGMP is dependent on the agreed management decisions of all groundwater users in the area, the City of Lincoln accepted an invitation from Roseville and PCWA to become a GMP partner. CAW, a private water purveyor with a service area along the southwest edge of Placer County, joined the effort in early 2007 as a partner. The City of Rocklin is not a groundwater user; the city's municipal water supply needs are provided by PCWA. Finally, Placer County has been an active participant in the GMP's development; however, as the County is not a water purveyor it has not formally joined the WPCGMP as a full partner.

In accordance with CWC § 10753.2, public notices were published by GMP partners as required (Appendix A). These notices were supported by a variety of outreach and information activities conducted by plan participants as summarized in WPCGMP Public Outreach and Information Plan (Appendix B). It is anticipated the outreach plan will be adapted to meet the needs of the WPCGMP and its stakeholders as conditions in the basin change.

Table 3-1: Public notices published during development of the WPCGMP per CWC § 10753.2

Partner	Public Notice	Date and Publication			
	Notice of intent to adopt a resolution to prepare a GMP	July 15 & 22, 2005; The Sacramento Bee			
ville	Text of adopted resolution published	November 18 & 25, 2005; The Sacramento Bee			
City of Roseville	Notice of public hearing to consider adoption of GMP	June 30 & July 7, 2007; Roseville Press Tribune			
City	Notice of public hearing to adopt GMP	<sup>1</sup> July 27, 2007; Posting of City of Roseville agenda to adopt a GMP			
	Resolution of adoption	August 1, 2007			
City of Lincoln	Notice of intent to adopt a resolution to prepare a GMP	November 30 & December 7, 2006; Lincoln News Messenger			
	Text of adopted resolution published	February 1 & 8, 2007; Lincoln News Messenger			
	Notice of public hearing to consider adoption of GMP	February 1 & 8, 2007; The Lincoln News Messenger			
	Notice of public hearing to adopt GMP	<sup>1</sup> November 21, 2007, 2007; Posting of City of Lincoln agenda to adopt a GMP			
	Resolution of adoption	November 27, 2007			
ency	Notice of intent to adopt a resolution to prepare a GMP	October 19 & 26, 2006; The Sacramento Bee/ Auburn Journal			
Placer County Water Agency	Text of adopted resolution published	November 9 & 16, 2006; The Sacramento Bee/ Auburn Journal			
	Notice of public hearing to consider adoption of GMP	August 2 & 9, 2007; The Sacramento Bee/ Auburn Journal			
Place	Notice of public hearing to adopt GMP	1August 31, 2007; Posting of PCWA agenda to adopt a GMP			
	Resolution of adoption	September 6, 2007			

<sup>&</sup>lt;sup>1</sup> Agenda items posted in Compliance with Section 54954.2 of the California Brown Act.

Once the plan participant group was set, the TRC engaged in a series of briefings to inform and gauge specific stakeholder groups' interest and involvement in the WPCGMP. Stakeholder groups briefed on the plans development were: Roseville Public Utility Commission; Lincoln City Council; Placer County Water Agency Board of Directors; Sacramento Groundwater Authority; and the Water Caucus of the Water Forum. This activity was supported by a project website (www.wpcgmp.org). The website featured a history of plan development, plan content, participant contact information, links, public notices and other information materials. The plan participants will continue to use their respective websites to distribute information on WPCGMP implementation activities to the public until the governance body of the WPCGMP is in place (as described in detail in **Section 4.6**).

In addition to stakeholder briefings, the TRC hosted the WPCGMP Open House, June 14, 2007, at the McBean Pavilion in Lincoln. Meeting invitees included area water purveyors, regional environmental organizations, local landowners, business owners, government agencies, and other interested parties. This meeting provided the TRC the opportunity to discuss the GMP with the public and other stakeholders and incorporate their ideas and comments to the document. The draft WPCGMP was released for formal public comment following a July 11, 2007, public hearing by the Roseville City Council. Once public comments are received and incorporated to the document as necessary, the Roseville City Council is anticipated to adopt the plan by August 1, 2007. Formal adoption by other plan partners will begin following adoption by the City of Roseville.

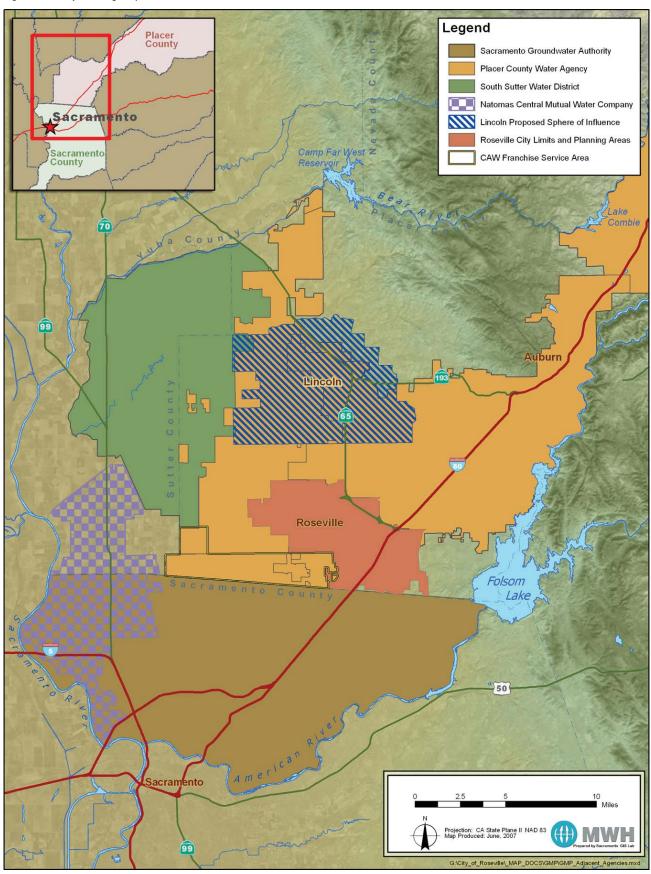
**Actions** — The governance body will take the following actions:

- Continue efforts to encourage public participation as opportunities arise.
- Review and take actions from the Public Outreach Plan as necessary during implementation of various aspects of the WPCGMP.
- Continue to provide briefings to the Water Forum Successor Effort on WPCGMP implementation progress.
- Work with basin stakeholders to maximize outreach on WPC-GMP activities including the use of the plan and plan participants' websites.

### 3.5.2 Involving Other Agencies Within and Adjacent to the WPCGMP Area

**Figure 3-2** shows adjacent purveyors within the WPCGMP area and some of the key adjacent entities that the WPCGMP has been coordinating with during development of this WPCGMP. Plan participants have provided briefings, presentations, and/or workshops to multiple adjacent agencies including the Sacramento Groundwater Authority (SGA) and its member agencies. Plan participant outreach has also included the Water and Environment Caucuses of the Water Forum, South Sutter Water District (SSWD), Natomas Central Mutual Water Company (NCMWC), Nevada Irrigation District (NID), San Juan Water District, City of Rocklin, City of Citrus Heights, Rio Linda/Elverta Community Water District, Yuba County Water Agency, Sacramento Suburban Water District, and Camp Far West Water District.

Figure 3-2 – Adjacent Agency Service Areas



Beginning in August 2007, Roseville's City Council, PCWA's Board of Directors, Lincoln's City Council, and CAW management plans to adopt the WPCGMP. This WPCGMP recognizes Placer County, South Sutter Water District, Sacramento Groundwater Authority, Natomas Central Mutual Water Company, and Nevada Irrigation District as a partner in managing the Sub-basin and has requested their review and assistance in the preparation of this WPCGMP.

**Actions** — The governance body of the WPCGMP will take the following actions:

- Continue a high level of involvement with SGA, SSWD, NC-MWC, NID and other interested parties in implementing the WPCGMP
- Provide copies of the adopted WPCGMP and subsequent annual reports to representatives from the SGA, SSWD, NCMWC, NID and other interested parties.
- Meet with representatives from the SGA, SSWD, NCMWC, NID and other interested parties, as needed.
- Coordinate a meeting with other self supplied groundwater pumpers in the WPCGMP area to inform them of the plan
- participant's management responsibilities and activities, and develop a list of other self supplied groundwater pumpers concerns and needs to the plan participant's management.
- Coordinate a meeting with the agricultural groundwater pumpers in the WPCGMP area to inform them of the plan participant's management responsibilities and activities, and develop a list of agricultural groundwater pumpers concerns and needs to the plan participant's management.

#### 3.5.3 Utilizing Advisory Committees

The plan participants have and will continue to use advisory committees in development and implementation of this WPCGMP. Prior to beginning development of the WPCGMP, the plan participants developed a group made up primarily of plan participants staff, named as the TRC to guide development of the WPCGMP. The TRC consisting of Roseville, PCWA, Lincoln, Placer County, CAW, and DWR staff and a representative from agricultural interests within the WPCGMP area and met periodically approximately on a bimonthly basis during the development of this WPCGMP.

**Actions** — The plan participants will take the following action:

 Upon adoption of the WPCGMP, the TRC will periodically meet to discuss scheduling and functions to guide implementation of the plan and provide these recommendations to the WPCGMP governance body.

### 3.5.4 Developing Relationships with State and Federal Agencies

Working relationships between the governance body and local, state, and federal regulatory agencies are critical in developing and implementing the various groundwater management strategies and actions detailed in this WPCGMP.

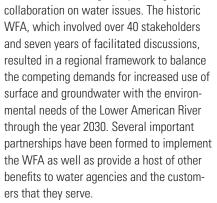
The TRC has developed on-going working relationships with local, state, and federal regulatory agencies (e.g., Placer County, Environmental Management Department (EMD), California DHS, etc.).

**Actions** — The governance body of the WPCGMP will take the following action:

 Continue existing and develop new working relationships with local, State, and Federal regulatory agencies.

#### 3.5.5 Pursuing Partnership Opportunities

This WPCGMP is committed to facilitating partnership arrangements at the local, State, and Federal levels. Over the past decade, the greater Sacramento-area water community and other local leaders have made great strides toward regional planning and



While the facilities necessary to implement, develop and expand conjunctive use programs in the WPCGMP area have not been fully identified, the potential exists to develop and expand facilities on a Sub-basin wide level to achieve broader regional and statewide benefits. The needed facilities, however, would require substantial resources. To investigate any further opportunities would require resources provided through partnerships with potential beneficiarios.

**Actions** — The governance body of the WPCGMP will take the following actions:

- Continue to promote partnerships that achieve both local supply reliability and achieve broader regional and statewide benefits.
- Continue to track and apply for grant opportunities to fund regional groundwater management activities and local water infrastructure projects.

## 3.6 COMPONENT CATEGORY 2: MONITORING PROGRAM (REQUIRED)

At the heart of this WPCGMP is a monitoring program capable of assessing the current status of the basin and predicting responses in the basin as a result of future management considerations. The program includes monitoring groundwater elevations, monitoring groundwater quality, monitoring and assessing the potential for land surface subsidence resulting from groundwater extraction, and developing a better understanding of the relationship between surface water and groundwater along the Feather, Bear, American, and Sacramento Rivers and other smaller streams. Also important is the establishment of monitoring protocols to ensure the accuracy and consistency of data collected.

#### 3.6.1 Groundwater Elevation Monitoring

DWR has collected a significant amount of groundwater elevation measurements extending from prior to 1950 to 2007. DWR's program collects biannual (spring and fall) groundwater level data from more than 32 wells throughout Placer County. In addition, over the past seven years the City of Lincoln has begun to collect extensive groundwater elevation measurements from production and monitoring wells within its service area. Plan participants have used some of this most recent data to generate a groundwater contour map for the WPCGMP area (see Section 2.1.4). However, because DWR only monitors and measures certain wells within the County, Roseville and Lincoln, groundwater contour maps for the County or the WPCGMP area have not been created on a consistent basis. As such, it is difficult to compare a historic contour map with a recent one. For this reason, plan participants are establishing a standardized network of wells that combines those monitored by DWR and other water purveyors. It is the plan participants' intent that the wells comprising this program be maintained as a consistent long-term network that represents overall groundwater elevation conditions in the basin. Figure 3-3 shows the wells that will be evaluated to develop this network.

Wells will be selected to provide uniform geographic coverage throughout the approximately 192.5 square mile WPCGMP area, and in an area around the northern, western, eastern and southern perimeter of the WPCGMP area. The well network will be developed by first establishing a network of sampling grids using the following method:

- Overlay a matrix of evenly spaced points over the entire WPC-GMP area.
- Surround matrix of points with polygons.
- Conform the boundaries of the polygons to WPCGMP area boundaries and regenerate area grids.

The resulting grid, shown on Figure 3-3, includes approximately 50 polygons of roughly equal area of about five square miles each. Plan participants will try to establish at least one monitoring well within each of the polygons to act as the future monitoring network.

Plan participants will give preference to wells currently in DWR's monitoring program. These wells will be evaluated first because (a) they have long records of historic groundwater level data and are useful in assessing trends within the groundwater basin, (b) uniform protocols were used in measuring and recording the water level data, and (c) these are typically non-producing wells, so water level readings represent relatively static levels.

Second, the plan participants will identify other municipal and private wells with well construction information, long records of groundwater elevation data and giving preference to those wells with the lowest recent extraction volumes.

**Actions**— Additional actions by the plan participants will include:

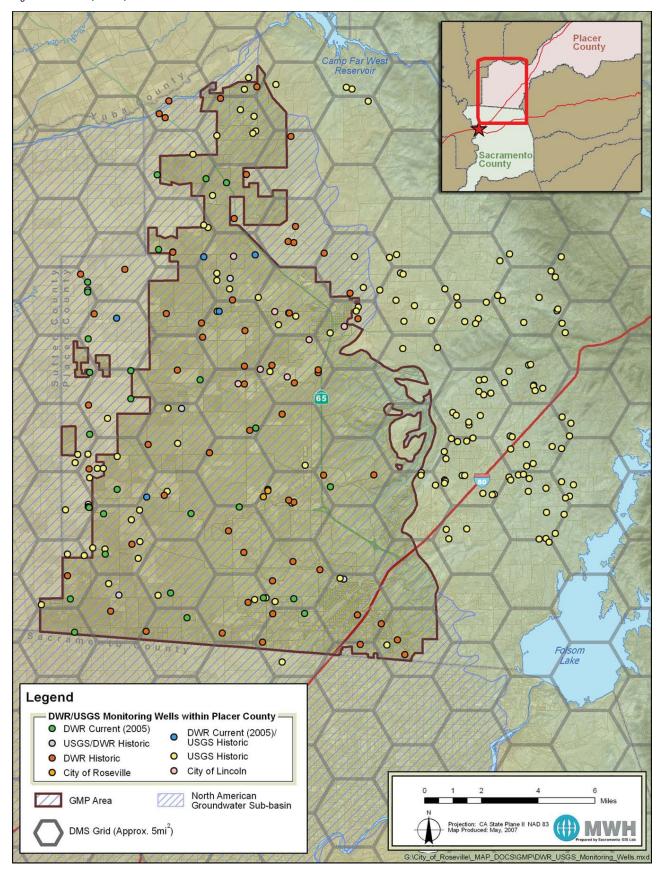
- Coordinate with DWR and others to identify an appropriate group of wells for monitoring for a spring 2008 set of groundwater elevation measurements.
- Coordinate with DWR and others to ensure that the selected wells are maintained as part of a long-term monitoring network.
- Coordinate with DWR to ensure that the timing of water level data collection by other agencies coincides within one month of DWR data collection. Currently DWR collects water level data in the spring and fall.
- Coordinate with other agencies to ensure that needed water level elevations are collected and verify that uniform data collection protocols are used among the agencies.
- Consider ways to fill gaps in the monitoring well network by identifying suitable existing wells or identifying opportunities for constructing new monitoring wells.
- Assess groundwater elevation trends and conditions based on the monitoring well network annually.
- Assess the adequacy of the groundwater elevation monitoring well network annually.
- Identify a subset of monitoring wells that will be monitored more frequently than twice annually to improve the plan participants' understanding of aquifer responses to pumping throughout the year.

#### 3.6.2 Groundwater Quality Monitoring

Because most of the wells in the basin are used for agricultural purposes, an extensive record of water quality data is not available for most wells. More recently public water supply wells have been constructed in the WPCGMP area, and therefore water quality data is available for these wells. These wells are listed on **Table 2-3**. Roseville and Lincoln have compiled available historic water quality data for constituents monitored as required by DHS under CCR Title 22.

This level of monitoring is sufficient under existing regulatory guidelines to ensure that the public is provided with a safe and reliable backup drinking water supply. Based on the limited list of contaminated sites identified in Section 2.1.3, it may be advisable to have in place a network of shallow (less than 200 feet deep) monitoring wells on the eastern edge of the basin where recharge

Figure 3-3 – DWR, USGS, Roseville and Lincoln Wells



primarily occurs to serve as an early warning system for contaminants that could make their way to greater depths in the basin where production wells extracts groundwater. Over the past several years, Lincoln has begun to install such a network. In addition, Roseville has constructed three monitoring wells located adjacent to the Diamond Creek Well to collect groundwater elevation and quality data during direct recharge as a result of their Aquifer Storage and Recovery (ASR) program. Additional monitoring wells for groundwater elevation and quality data collection are anticipated as Roseville expands their ASR program in western portions of the City.



**Figure 2-8** shows existing WPCGMP area production wells. CCR Title 22 water quality reporting is required by DHS for each of these public drinking water sources. The plan participant's water quality monitoring network includes these wells. The water quality monitoring well network may be expanded to include additional DWR and privately owned wells based on the outcome of coordination meetings with these agencies and various landowners.

**Actions**— The following actions will be taken by the plan participants to monitor and manage groundwater quality:

- Coordinate with cooperating agencies to verify that uniform protocols are used when collecting water quality data.
- Coordinate with local, state, and federal agencies to identify
  where wells may exist in areas with sparse groundwater quality
  data. Identify opportunities for collecting and analyzing water
  quality samples from those wells.
- Assess the adequacy of the groundwater quality monitoring well network annually.

#### 3.6.3 Land Surface Elevation Monitoring

Subsidence of the land surface resulting from compaction of underlying formations affected by head (groundwater level) decline is a well-documented concern throughout much of the Central Valley. During a typical pumping season, changes in land surface elevation can be observed as a result of both elastic and inelastic subsidence in the underlying basin. Elastic subsidence results from the reduction of pore fluid pressures in the aquifer system and typically rebounds when pumping ceases or when groundwater is otherwise recharged resulting in increased pore fluid pressure. Inelastic subsidence occurs when pore fluid pressures decline to the point that aquitard (a silt or clay bed of an aquifer system) sediments collapse resulting in permanent compaction and reduced ability to store water in that portion of the aquifer.

While some land surface subsidence is known to have occurred as a result of groundwater extraction west of the Sacramento River, it is believed that the extent of subsidence east of the Sacramento River has been minimal. DWR maintains 13 extensometer stations in the northern Sacramento Valley: 3 in Glenn County, 5 in Butte County, 2 in Colusa County, 1 in Sutter County, and 2 in Yolo County.

According to DWR there is no documented evidence of land subsidence in the WPCGMP area (DWR, 1997). However, data from an extensometer indicate a small amount of downward land surface displacement occurred during the 1994, 1995, and 1996 summer irrigation seasons. This limited data set indicates that the land surface subsides and rebounds with groundwater elevation declines and increases, respectively. According to DWR, these records, based on this limited data set, show no permanent land subsidence has occurred at this station, which is located west of the WPCGMP area approximately at the intersection of Highway 99 and the Natomas Cross Canal.

Historical benchmark elevation data for the period from 1912 through the late 1960s obtained from the National Geodetic Survey (NGS) has been used to evaluate land subsidence in north Sacramento County. From 1947 to 1969 the magnitude of land subsidence measured at benchmarks north of the American River in Sacramento County ranged from 0.13 feet to 0.32 feet, with a general decrease in subsidence in a northeastward direction. This decrease is consistent with the geology of the area: formations along the eastern side of the Sacramento Valley are older than those on the western side and are subject to a greater degree of pre-consolidation making them less susceptible to subsidence. The maximum documented land subsidence of 0.32 feet was measured at both benchmark L846, located approximately two miles northeast of the former McClellan AFB, and benchmark G846, located approximately one mile northeast of the intersection of Greenback Lane and Elkhorn Boulevard

Whether this is inelastic subsidence is indeterminate from the data, but it is clear that the magnitude of the potential subsidence of benchmarks during the above mentioned periods appears negligible.

An extensometer measures subsidence at a single point. To monitor subsidence within the WPCGMP area key survey stations would need to be located. NGS approved stations using a ground positioning system (GPS) or conventional leveling will determine the change in a single point land surface elevation and ultimately be used to evaluate land subsidence within the WPCGMP area.

As described previously, DWR has recently begun developing a program to monitor subsidence in the Sacramento Valley. This program referred to as the Sacramento Valley - Land Surface Elevation Monitoring Program is in the beginning stages as DWR is gathering local support. Land surface elevation data collected as part of this program could be used by cooperating agencies to evaluate if subsidence is being caused by groundwater pumping. DWR is actively seeking partners interested in cooperatively developing a land surface elevation network of GPS monuments. Current project partners include Yuba County Water Agency and Butte, Glenn, and Tehama Counties. Participation ranges from financial assistance to in-kind staff hours. WPCGMP participants have joined the effort.

DWR has identified a gap of subsidence data in Placer County. DWR estimates that 8 monuments would be needed to fill the gap. DWR has provided a rough per monument dollar estimate of \$4,500. For this reason, it is estimated that \$36,000 worth of monuments would be necessary to fill the gap. DWR will evaluate the information provided by Roseville and Lincoln and decide whether the survey points meet NGS standards.

**Actions** — While available data and reports indicate that land surface subsidence is not a concern in the WPCGMP area, the plan participants are interested in monitoring for potential land surface subsidence, which may include:

 Coordinate with other agencies, particularly the DWR, USGS, and SGA to determine if there are other suitable benchmark locations in the WPCGMP area to aid in the analysis of potential land surface subsidence.

### 3.6.4 Surface Water Groundwater Interaction Monitoring

The interaction between groundwater and surface water has not been extensively evaluated within the WPCGMP area. Due to the fact that only IGSM modeling results are available for the WPC-GMP area, the plan participants recommend the following actions:

**Actions** — The plan participants will pursue actions to better understand the relationship between surface and groundwater in the WPCGMP area, including:

- Work cooperatively with DWR and others to compile available stream gage data and information on tributary inflows and diversions from the Feather, Bear, and Sacramento rivers to quantify net groundwater recharge or discharge between gages in the WPCGMP area.
- Coordinate with local, State, and Federal agencies to identify available surface water quality data from the Feather, Bear and

- Sacramento rivers proximate to the WPCGMP area.
- Correlate groundwater level data from wells in the vicinity of river stage data to further establish whether the river and water table are in direct hydraulic connection, and if the surface water is gaining or losing at those points.
- Continue to coordinate with local, State, and Federal agencies and develop partnerships to investigate cost-effective methods that could be applied to better understand surface watergroundwater interaction along the Feather, Bear, and Sacramento rivers.
- Perform evaluations of accretion/depletion interactions for local streams that bisect the WPCGMP, such as Auburn Ravine and Coon Creek.



## 3.6.5 Protocols for the Collection of Groundwater Data

Through the work completed as part of the SGA's GMP, MWH has evaluated the accuracy and reliability of groundwater data collected by cooperating agencies within the Sacramento Region (MWH, 2002). The evaluation indicated a significant range of techniques, frequencies and documentation methods for the collection of groundwater

level and quality data. Although the groundwater data collection protocol may be adequate to meet the needs of individual agencies, the lack of consistency yields an incomplete picture of basinwide groundwater conditions. Other types of groundwater data collection protocols are included in Sections 3.5.1 and 3.5.2 above.

**Actions** — To improve the comparability, reliability and accuracy of groundwater data within the WPCGMP area and SGA, the plan participants will take the following actions:

- Use a Standard Operating Procedure (SOP) for collection of water level data by each of the cooperating agencies. Appendix C includes a SOP for Manual Water Level Measurements. This SOP was prepared using guidance documents available through the Environmental Protection Agency (EPA) and was included in a technical memorandum developed for SGA summarizing the accuracy and reliability of groundwater data (MWH, 2002).
- Provide cooperating agencies with guidelines on the collection of water quality data developed by DHS for the collection, pretreatment, storage, and transportation of water sample.
- Provide training on the implementation of these SOPs to cooperating agencies, if requested.

#### 3.6.6 Groundwater Data Management System

In order for the plan participants to achieve their primary objective of sustaining the groundwater resource within the WPCGMP area, it was essential to develop a data storage and analysis tool, or DMS. The DMS was developed by MWH under contract with the USACE. Other local sponsors included SGA and its member agencies. DWR, and SCWA.

The DMS is a public domain application developed in a Microsoft Visual Basic environment and is linked to a SQL database containing North American Basin purveyor data. The DMS provides the end-user with ready access to both enter and retrieve data in either tabular or graphical formats. Security features in the DMS allow for access restrictions based on a variety of user permission levels. Data in the DMS include:

- Well construction details.
- Known locations of groundwater contamination and potentially contaminating activities.
- Long-term monitoring data on monthly extraction volumes.
- Water elevations.
- Water quality
- Aguifer characteristics based on well completion reports.

The DMS allows for the viewing of regional trends in ground-water elevation and quality not previously available to the plan participants. The DMS has the capability of quickly generating well hydrographs and groundwater elevation contour maps using historic groundwater level data. The DMS also has the ability to view water quality data for CCR Title 22 required constituents as a temporal concentration graph at a single well or any constituent can be plotted with respect to concentration throughout the WPCGMP area. Presentation of groundwater elevation and quality data in these ways will be useful for making groundwater basin management decisions.

Groundwater data from a select group of Roseville's ASR compatible backup water supply wells and monitoring wells has already been loaded into the DMS. Other plan participants are currently in the process of evaluating the future use of the DMS. If used throughout the WPCGMP area, data transfer protocols will be established so that groundwater data in both the SGA and WPC-GMP areas (by cooperating agencies, DWR, USGS, etc.) can be readily appended to the database and analyzed through the DMS. Annual summaries of groundwater monitoring data would then be prepared using the analysis tools in the DMS and presented in the update to the State of the Basin report (see Section 4).

Again, if the DMS were widely used and once fully populated and quality-control checked a summary of existing basin conditions would be prepared. From this, an initial summary analysis would be performed on at least an annual basis to assess the impacts of current and future plan participants' management actions on the groundwater system.

**Actions** — If widely used, to maintain and improve the usability of the DMS, plan participants will take the following actions:

- Provide users staff with training and use of a Data Management System (DMS).
- Populate and update a DMS with available groundwater, water quality, well, and surface water data.
- Develop list of recommended enhancements to a DMS.
- Provide resources for maintaining and updating a DMS.
- Provide resources for maintaining, updating and utilizing a groundwater model or the North American River IGSM.
- Develop and present a biennial State of the Basin Report.

## 3.7 COMPONENT CATEGORY 3: GROUNDWATER RESOURCE PROTECTION



Monitoring well containment box

Plan participants consider groundwater protection to be one of the most critical components of ensuring a sustainable groundwater resource. In this WPCGMP, resource protection includes both the prevention of contamination from entering the groundwater basin and the remediation of existing contamination plumes. Prevention measures include proper well

construction and destruction practices, development of wellhead protection measures, and protection of recharge areas. Measures to prevent contamination from human activities as well as contamination from natural substances such as saline water bodies from entering the potable portion of the groundwater system will be addressed as part of this component category.

#### 3.7.1 Well Construction Policies

Placer County typically administers the well permitting program for the entire County, with the exception of lands within Roseville and Lincoln city limits. Placer County Environmental Management Department (EMD) well permitting program is detailed in Placer Counties Municipal Code sections 13.08, which define the purpose of the Well Water code as:

It is the purpose of this article to protect the health, safety, and general welfare of the people of the county of Placer by ensuring that the groundwater of this county will not be polluted or contaminated. To this end, minimum requirements are contained in this article for construction, reconstruction, repair, and destruction of water wells, cathodic protection wells, and monitoring wells. (Prior code § 4.800)



Placer County Municipal Code sections 14.11.030 defines the permit requirements as:

- a) When Required. No person shall dig, bore, drill, deepen, modify, repair, or destroy a water well, cathodic protection well, observation well, or monitoring well without first applying for and receiving a permit as provided in this article unless exempted by law.
- b) Penalty for Failure to Obtain Permit. Any person who commences any work for which a permit is required by this article without having previously obtained a permit shall be required, if subsequently granted a permit for this work, to pay double the standard permit fee.
- c) Emergency Work. The above provisions shall not apply to emergency work required on short notice to maintain drinking water or agricultural supply systems. For the emergency work, when county offices are closed, a permit may be issued after such work has commenced, provided the following conditions are met:
- The permit application is made the first day county offices are open following said work; and
- The well system serves an existing structure or facility or agricultural operation; and
- The person responsible provides written documentation to the enforcement agency that such work was urgently necessary; and
- Conformance with Standards. Demonstrate that all work performed was in conformance with the technical standards as designated in Section 13.08.060. (Prior code § 4.808)

The Well Water Code as part of the Placer County's Municipal Code may be found at the web address below:

#### http://ordlink.com/codes/placer/index.htm

Roseville's Environmental Utilities Engineering Division is the permitting agency for wells located within the Roseville's city limits. For this reason, Roseville is aware of proposed and active wells within the Roseville's city limits. In order to permit a well in Roseville, a Well Construction Application and Permit Form must be filed with the environmental utilities department. An engineer from Roseville provides inspection services when new wells are constructed including observations during well seal grouting.

This process is detailed in the Roseville's Well Water Code as part of the Roseville's Municipal Code. Roseville's Municipal Code section 14.11.010 defines the purpose of the Well Water code as:

It is the purpose of this chapter to protect the health, safety and general welfare of the people of the City of Roseville by ensuring that the ground waters of the City will not be polluted or contaminated. It is also the purpose of this chapter that all ground waters be used to the benefit of the people of the City of Roseville. To this end, minimum requirements are contained in this chapter for construction, reconstruction, repair, use and destruction of water wells, cathodic protection wells, monitoring wells, and soil boring activities undertaken to investigate the environmental condition or water-bearing capacities of a property. (Ord. 2895 § 1 (part), 1995.)

The City Municipal Code sections 14.11.030 defines the permit requirements as:

No person shall dig, bore, drill, deepen, modify, repair or destroy a water well, cathodic protection well, observation well, monitoring well or any other excavation that may intersect ground water without first applying for and receiving a well permit as provided in this chapter unless exempted by law. (Ord. 2895 § 1 (part), 1995.)

The Well Water Code as part of the Roseville's Municipal Code may be found at the web address below:

#### http://bpc.iserver.net/codes/rosevill/index.htm

Starting in 1998, Lincoln assumed the responsibility from the Placer County EMD for the construction of all private and public wells within the city limits. Lincoln's Public Works Department has a permitting process in place to facilitate this responsibility. Typically, Lincoln does not allow the permitting of new private wells within city limits.

**Actions** — The plan participants will take the following actions:

- Ensure that the SGA, SSWD, NCMWC, NID, and others are provided a copy of the plan participants/Placer County's well ordinance and procedures and understand the proper well construction procedures.
- Provide a copy of the most recently delineated plume extents (if any) to the SGA, SSWD, NCMWC, NID, and others.
- Coordinate with the SGA, SSWD, NCMWC, NID, and others to provide guidance as appropriate on well construction. Where feasible and appropriate, this could include the use of subsurface geophysical tools prior to construction of the well to assist in well design.

### 3.7.2 Well Abandonment and Well Destruction Policies



Placer County typically administers the well destruction program for the entire County, with the exception of lands within the Roseville and Lincoln city limits. Placer County EMD well destruction program is detailed in Placer County's Muncipal Code sections 13.08.100., which defines the purpose of the Well Water code as:

"Except as otherwise specified, the standards for the construction, modification or destruction of wells shall be as set forth in:

- a) Department of Water Resources Bulletin 74-81. The California Department of Water Resources Bulletin 74-81, "Water Well Standards, State of California," except as modified by subsequent revisions.
- b) All Subsequent Supplements and Revisions. All subsequent Bulletin 74-81 supplements or revisions issued by the Department of Water Resources, once the revised standards have been reviewed at appropriate public hearings. (Prior code § 4.820)

Roseville's Municipal Code sections 14.11.030 defines abatement of abandoned wells as:

All persons owning an Abandoned Well as defined shall destroy it, following the guidelines set forth in Bulletin 74-90 and this chapter. (Ord. 2895 § 1 (part), 1995.)

Similar well construction policies, starting in 1998, Lincoln assumed the responsibility from the Placer County EMD for the permitting of all well destructions within the city limits. Lincoln's Public Works Department has a permitting process in place to facilitate this responsibility.

One concern expressed by the plan participants is that some abandoned domestic or agricultural wells may not been properly destroyed. For this reason, the plan participants plan to take the following actions.

**Actions** — The plan participants will take the following actions:

- Review DWR well records for all known wells in the WPCGMP area which were reported abandonment and destruction. Rate and provide a survey on the confidence of proper destruction based on the information provided on the report.
- Ensure that the SGA, SSWD, NCMWC, NID, and others are provided a copy of the Roseville/Lincoln /Placer County's code and understanding the proper destruction procedures and support implementation of these procedures.

- Follow up with the SGA, SSWD, NCMWC on the reported abandoned and destroyed wells to confirm the information collected from DWR. Follow up with the SGA, SSWD, NCMWC, and NID on the reported abandoned and destroyed wells to confirm the information collected from DWR.
- Provide a copy of the information of abandoned and destroyed wells in Placer County to fill gaps in County records (if any).
- Meet with Placer County EMD and DWR to ensure that wells in the WPCGMP area are properly abandoned or destroyed.
- Meet with the Placer County Farm Bureau and Placer County Agricultural Commission to encourage them to help educate farmers regarding the identification and proper destruction of abandoned wells.
- Obtain "wildcat" map from California Division of Oil and Gas to ascertain the extent of historic gas well drilling operations in the area as these wells could function as conduits to groundwater if not properly destroyed.

#### 3.7.3 Wellhead Protection Measures

Identification of wellhead protection areas is a component of the Drinking Water Source Assessment and Protection (DWSAP) Program administered by DHS. DHS set a goal for all water systems statewide to complete Drinking Water Source Assessments by mid-2003. Roseville has completed their required assessments by performing the three major components required by DHS:

- Delineation of capture zones around source wells
- Inventory Potential Contaminating Activities (PCAs) within protection areas
- Analyze the vulnerability of source wells to PCAs

Delineation of capture zones includes using groundwater gradient and hydraulic conductivity data to calculate the surface area overlying the portion of the aquifer that contributes water to a well within specified time-of-travel periods. Typically, areas are delineated representing 2-, 5-, and 10-year time-of-travel periods. These protection areas need to be managed to protect the drinking water supply from viral, microbial, and direct chemical contamination.

Inventories of PCAs include identifying potential origins of contamination to the drinking water source and protection areas. PCAs may consist of commercial, industrial, agricultural, and residential sites, or infrastructure sources such as utilities and roads. Depending on the type of source, each PCA is assigned a risk ranking, ranging from "very high" for such sources as gas stations, dry cleaners, and landfills, to "low" for such sources as schools, lakes, and non-irrigated cropland.

Vulnerability analysis includes determining the most significant threats to the quality of the water supply by evaluating PCAs in terms of risk rankings, proximity to wells, and Physical Barrier Effectiveness (PBE). PBE takes into account factors that could limit infiltration of contaminants including type of aquifer, aquifer material (for unconfined aquifers), pathways of contamination, static water conditions, hydraulic head (for confined aquifers), well

operation, and well construction. The vulnerability analysis scoring system assigns point values for PCA risk rankings, PCA locations within wellhead protection areas, and well area PBE; the PCAs to which drinking water wells are most vulnerable are apparent once vulnerability scoring is complete.

It is important that Roseville account for PCAs that exist in adjacent regions. PCA and capture zone information can be added to the DMS to aid in assessing wellhead protection. The DMS includes a feature that will automatically calculate wellhead protection areas if no data are available or if new well locations are proposed.

**Actions** — The plan participants will take the following actions:

- Request that the SGA, SSWD, NCMWC, and NID provide vulnerability summaries from the DWSAP to the plan participants governance structure to be used for guiding management decisions in the basin.
- Contact groundwater basin managers in other areas of the state for technical advice, effective management practices, and "lessons learned", regarding establishing wellhead protection areas.

#### 3.7.4 Protection of Recharge Areas



PCWA has evaluated surface geology within and directly adjacent to the WPCGMP boundary for the purpose of delineating areas of potentially high recharge rates (PCWA, 2005). Lincoln has also identified protection of natural recharge areas a key element of its management objectives (Lincoln, 2003). Natural recharge of area groundwater resources occurs

primarily from percolation of irrigation water, infiltration along the creeks and drainages, infiltration of precipitation, and subsurface inflow. Natural recharge rates can be maintained by keeping the major recharge areas free of impervious surfaces.

The efficiency of direct recharge through surface spreading, as opposed to natural recharge, is highly related to the infiltration rate of the surficial soil. Surface soils map for the WPCGMP area from the U.S. Department of Agriculture, showing soil classes with different infiltration rate, have been evaluated by PCWA. The best candidates would be pasture lands for stock grazing because flooding these vacant lands combined with proper land rotation will have little or no negative impacts on the agricultural economy. Native lands not reserved for habitat conservation might also be candidates. Areas along or near natural streams may be good

candidates for spreading activities due to the presence of subsurface alluvium and channels potentially useable for conveyance, although spreading may pose environmental impacts. Areas where canals, treated water systems, or possibly wastewater treatment plants are nearby may also be good candidates due to the proximity to potential water sources. Current recharge that may be of interest include the following:

- Nevada irrigation District (NID) Bear River Use of NID Canal to deliver raw surface water to recharge basins.
- Dry Creek Waste Water Treatment Plant (WWTP) Convey recycled water via Dry Creek and divert water to recharge basins.
- Dry Creek WWTP Create new diversion facilities on Dry Creek in Placer County for basin recharge from Dry Creek WWTP.

Currently the only artificial recharge site in the WPCGMP area is the Roseville ASR program, which is currently in a demonstration phase of testing. Plan participants are interested in implementing actions designed to protect future recharge areas both artificial and natural for the Roseville ASR program and other future artificial recharge sites in the WPCGMP area.

The runoff characteristics and recharge potential of the soil throughout the Lincoln area have been investigated and mapped (Saracino, Kirby, and Snow, 2003) – providing a qualitative indication of a real potential for deep percolation of surface water into the aquifer systems. Most of the soil cover across the North American Subbasin has been classified as having high runoff (low infiltration) potential, except in the vicinity of river and stream drainages (Montgomery Watson, 1995). A fairly large area surrounding Auburn Ravine, as well as Coon Creek, has been classified as having soils with moderate to high runoff potential (low to moderate infiltration potential). DWR (1995) characterizes the soil cover across the area as having dense subsoil that limits deep percolation of water applied at the surface; less dense soils occur in the vicinity of creeks such as Coon Creek and Auburn Ravine, providing better deep percolation and recharge. Boyle (1990) also identified the Markham Ravine drainage as a probable area of groundwater recharge and Spectrum-Gasch (1999) identified the Orchard Creek drainage, along with Auburn Ravine, as probable areas of significant recharge based on the inferred shallow depth to the upper aguifer zone in these areas.

**Actions** — The plan participants will take the following action:

- Develop a recharge program that identifies major natural recharge areas, quantifies current recharge rates, identifies potential sources of surface water that could be utilized for recharge, and methods for recharging groundwater.
- Identify potential activities that could adversely affect recharge quantities or qualities and formulate cohesive policies that the plan participants can use to manage or mitigate potential impacts.

### 3.7.5 Control of the Migration and Remediation of Contaminated Groundwater

Contaminated groundwater within the WPCGMP area is limited in comparison to groundwater contamination documented in the SGA area. However, within the WPCGMP area, groundwater contamination has been documented at the Union Pacific Railroad (UPRR) Roseville Yard, Alpha Explosives, Deluxe Cleaners, Roseville Sanitary Landfill, and Western Placer Waste Management Authority Landfill Site as described in Section 2.1.3. Although not documented within this WPCGMP, other sites of concern include localized contamination from industrial/commercial point sources such as other dry cleaning facilities and numerous fuel stations throughout the WPCGMP area.

While the plan participants do not have authority or the responsibility for remediation of this contamination, they are committed to coordinating with responsible parties and regulatory agencies to stay informed on the status and disposition of known contamination in the WPCGMP area.

There are a number of historic, current, and proposed activities in and near Lincoln that have the potential to contaminate groundwater. These activities, described in Lincoln's 2003 GMP, are not the only potential sources of contamination to Lincoln's groundwater. The activities included in the report are derived from information provided by Applied Engineering and Geology (AEG, 2003). These identified activities represent locations where there has been, is, or may be certain contaminants that have caused or could cause an adverse impact to groundwater within Lincoln's Sphere of Influence. Information to develop the locations was compiled from various sources including: Placer County Division of Environmental Health, Regional Water Quality Control Board, GeoTracker Database, AEG's files, Department of Toxic Substances Control, Environmental Data Resources, consultant reports, and others.

**Actions** — The plan participants will take the following actions:

- Map and monitor known contaminated sites while coordinating with known responsible parities (if any) to develop a network of monitoring wells to act as an early warning system for public supply wells.
- If detections occur in these monitoring wells, work with the responsible parties and the potentially impacted areas of the SGA, SSWD, NCMWC and NID to develop strategies to minimize the further spread of contaminants.
- Provide the SGA, SSWD, NCMWC and others with all information on mapped contaminant plumes and LUST sites for their information in developing groundwater extraction patterns and in the siting of future production or monitoring wells.
- Inform the SGA, SSWD, NCMWC, and NID of the presence of the interface and the approximate depth of the interface below their service area for their reference when siting potential wells.
- Establish and isolate zones around known contamination plumes so as to limit the placement of production wells whose pumping might otherwise exacerbate the contamination. Add offset requirements for landfills

### 3.7.6 Control of Saline Water Intrusion

Saline water intrusion from the Sacramento/San Joaquin River Delta (Delta) is not currently a problem in the WPCGMP area, and is not expected to become a problem in the future. Higher groundwater elevations associated with recharge from the American and Sacramento Rivers have maintained a historical positive gradient preventing significant migration of any saline water from the Delta into the Placer County region. These groundwater gradients will continue to serve to prevent any localized pumping depressions in the basin from inducing flow from the Delta into the WPCGMP area.

**Actions** — The plan participants will take the following actions:

- Track the progression, if any, of saline water bodies moving toward the east from the Delta. Because this is a highly unlikely scenario, this action will be limited to communicating with DWR's Central District Office on a biennial basis to check for significant changes in TDS concentrations in wells. DWR has a regular program of sampling water quality in select production wells throughout the adjacent Solano, San Joaquin, and Yolo counties. This will serve as an early warning system for the potential of saline water intrusion from the Delta.
- Determine and monitor the elevation of the fresh water/saline water vertical interface. Analyze for trends in sodium, chloride, and TDS that may indicate upconing of saline water.
- Observe TDS concentrations in plan participant's municipal wells that are routinely sampled under Title 22. This data will be readily available as part of the DMS and are already an on-going task for the annual review of basin conditions.
- Inform all stakeholders of the presence of the salinity interface and the approximate depth to the interface for their reference when siting potential wells. The plan participants will also ensure that Placer County EMD, along with Roseville and Lincoln, issues well permits, is aware of the interface. The plan participants will provide a map indicating the contour of the elevation of the base of fresh water in Placer County to EMD for their reference when issuing well permits.



### 3.8 COMPONENT CATEGORY 4: GROUNDWATER SUSTAINABILITY

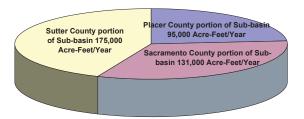
To ensure a long-term viable supply of groundwater, the plan participants are seeking to maintain the amount of groundwater stored in the basin over the long-term.

As described within the western Placer County Groundwater Storage Study, the calculated sustainable yield for the entire North American River Groundwater Subbasin is equal to 400,000 AF/year (PCWA, 2005). The Water Forum set the sustainable yield for Sacramento County portion of the subbasin at 131,000 AF/year with the remaining approximate 269,000 AF/year split 175,000 and 95,000 AF/year for Sutter and Placer County, respectively.

The "Long-term Average Sustainable Yield" definition for purposes of this WPCGMP is the average groundwater extraction calculated over a period of time commencing with the adoption of the WPCGMP. Given that agricultural groundwater extractions are estimated based on land use and crop type approximately every five years commensurate with the DWR Land Use Survey, each new year of data is added to the next and then averaged over the entire period of record. The 2000 extraction data will be added to the 2010 extraction data and so on. The "long-term" average is the average of the total extraction over the period of record (i.e. 2000 to 2010 in this example).

To ensure a sustainable resource, the plan participants continue to move forward with conjunctive use programs in the WPCGMP area including protection of natural recharge areas, pursuit of additional surface water supplies, increased use of recycled water, groundwater recharge and implementation of the WFA water conservation element. Current conjunctive management activities are described below.

Figure 3-4 – Recommended Sustainable Yield for the North American Groundwater Sub-Basin



### **3.8.1** Conjunctive Management Activities

Two primary activities will result in an improved ability to sustain the viability of the groundwater resource for the region. Conjunctive management is an activity that includes the planning and construction of facilities to increase the available surface water supply to the area as well as to create opportunities for the banking and exchange of water with local in-basin partners after local needs are met. These partnerships will result in increased surface water and perhaps revenue to pay for some of the necessary capital improvements to help sustain the resource in a cost-effective way (Conjunctive Management Activities).

The plan participants are committed to expanded direct recharge activities and have investigated a variety of ways of recharging water into the available storage space in the basin (see **Sections 1.5.1.3., 1.5.1.4.**, and **1.5.3.2**). Opportunities for direct recharge from overlying land in the basin exist through recharge basins (e.g., abandoned aggregate mining pits or wetland habitat reserves) or through ASR. Roseville is currently implementing ASR programs where treated surface water is being injected into the groundwater and recovered through wells in the summer months and dry years. Most of the potential recharge opportunities could occur by providing raw or treated surface water or recycled water to municipal and agricultural users in-lieu of their extracting groundwater.

**Actions** — The plan participants will take the following actions:

- Continue to investigate conjunctive use opportunities within the WPCGMP area.
- Continue to investigate opportunities for the development of direct recharge facilities in addition to in-lieu recharge (e.g. injection wells or surface spreading facilities, through constructed recharge basins or in river or streambeds.

### 3.8.2 Demand Reduction

Another way to maintain the sustainable yield of the basin and continue to achieve in-lieu recharge is by reducing demand for potable water supplies by conservation and through the use of recycled water for landscape irrigation.

Water Conservation. Roseville, as a signatory to the WFA; Lincoln, as a signatory to the California Urban Water Conservation Council's Memorandum of Understanding; and PCWA, as a signatory to both; are committed to implementing water conservation programs. As part of their respective agreements, each agency has implemented most, if not all, of the water conservation Best Management Practices (BMPs) listed in **Tables 3-2** and **3-3**.

Water Recycling. Currently Roseville and Lincoln have recycled water programs. Recycled water is currently produced at Roseville's regional WWTPs at Dry Creek and Pleasant Grove Creek. Effluent from Roseville's treatment plants is tertiary treated and meets Title 22 full body contact requirements for use of recycled water.

Roseville has made upgrades to transmission pipelines to allow more than 6 million gallon per day (MGD) of recycled water for use at area parks and golf courses. Roseville plans to expand its existing recycled water distribution system to reduce demands for potable water in the City and to minimize discharges to Dry Creek and Pleasant Grove Creek.

Wastewater from Lincoln is treated at a City-owned Wastewater Treatment and Reclamation Facility (WWTRF) located westsouthwest of the downtown area. The 3.3 MGD WWTRF began operation in 2004 and generated an initial 2.4 MGD of average dry weather flow with expansion capacity to 12 MGD in 2020. The WWTRF replaced the Waste Water Treatment Plant, which has been decommissioned. Effluent from the WWTRF undergoes treatment processes that include oxidation, coagulation, clarification, filtration, and disinfection. This level of treatment allows the effluent to meet California Department of Health services (DHS) unrestricted reuse criteria (Eco:Logic, 2001).

Wastewater effluent from the Lincoln WWTRF is utilized for irrigation on approximately 382 acres at three sites. During the non-irrigation season, effluent is stored for future use. Areas that currently receive recycled water are capable of using 1.8 MGD. Lincoln initiated a Wastewater Reclamation Study to determine the potential for reclaiming treated wastewater from the new WWTRF. According to an administrative draft, the objectives of the study are to:

- Identify potential reclamation areas near the plant.
- Review water supplies available in the area.
- Analyze applicable wastewater recycling regulations and summarize their impact on wastewater treatment facilities
- Evaluate the market for wastewater reclaiming opportunities.
- Identify and prioritize the most likely projects for wastewater reclamation.
- Actions. The plan participants will take the following actions:
- Continue to participate in their respective conservation efforts.
- Coordinate with City of Lincoln, SGA, SSWD, NCMWC, NID, and others to investigate further opportunities for expanded use of recycled water throughout the WPCGMP area.

Table 3-2: Water Conservation Best Management Practices Implemented by Roseville and PCWA

### Water Forum Agreement **Water Conservation Best Management Practices**

- 1. Interior and exterior water audits and incentive programs for single-family residential, multi-family residual, and institutional customers
- Plumbing retrofit of Existing Residential Accounts
- Distribution System Water Audits, Leak Detection and Repair
- Non-residential Meter Retrofit
- Residential Meter Retrofit
- Large Landscape Water Audits and Incentives for Commercial, Industrial, Institutional, and Irrigation Accounts
- Landscape Water Conservation Requirements for New and Existing Commercial, Industrial, Institutional and Multifamily Developments
- **Public Information**
- School Education
- 10. Commercial and Industrial Water Conservation
- 11. Conservation Pricing for Metered Accounts
- 12. Landscape Water Conservation for New/Existing Single Family Homes
- 13. Water Waste Prohibition
- 14. Water Conservation Coordinator
- 15. Ultra-low Flush Toilet Replacement Program for Non-Residential Customers



### 3.9 **COMPONENT CATEGORY 5: PLANNING** INTEGRATION

With the number of water purveyors and cities serving the Western Placer County area, the need to integrate water management planning on a regional scale is a high priority. Individual purveyors and cities derive their supplies from the American River, the Sacramento River, the groundwater basin, or some mix of these sources. Their infrastructure systems are mostly independent; where interconnections do exist between purveyors or cities, they are typically for emergency purposes only.

### **Existing Integrated Planning Effort**

The plan participants, or subsets thereof, are part of various existing integrated planning efforts. These efforts include the WFA, ARB IRWMP, and Integrated Surface and Groundwater Modeling.

- Water Forum Agreement. The WFA, as described in Section X, provides a regional conjunctive use framework with commitments from individual purveyors concerning groundwater and surface water operations, including limitations on surface water diversions from the lower American River during dry years. PCWA, Roseville, and CAW are all signatories to the WFA.
- ARB IRWMP. Regional Water Authority (RWA), Freeport Regional Water Authority (FRWA), and Sacramento County Water Agency (SCWA), along with it various members and stakeholders, have developed the American River Basin (ARB) Integrated Regional

Table 3-3: Water Conservation Best Management Practices Implemented by Lincoln and PCWA

### **California Urban Water Conservation Council's Water Conservation Best Management Practices**

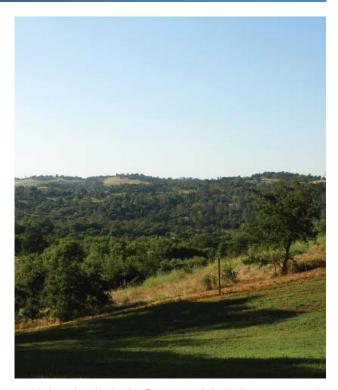
- Water Survey Programs for Single-Family Residential and Multi-Family
- Residential Customers
- Residential Plumbing Retrofits System Water Audits, Leak Detection and Repair
- Metering With Commodity Rates
- Large Landscape Conservation Programs and Incentives
- High-efficiency Washing Machine Rebate Programs
- Public Information Programs
- School Education Programs
- Conservation Programs for Commercial, Industrial, and Institutional Accounts
- 10. Wholesale Agency Programs
- Conservation Pricing
- 12. Water Conservation Coordinator
- Water Waste Prohibition
- 14. Residential Ultra-Low-Flush Toilet Replacement Programs

Water Management Plan (IRWMP). The IRWMP, as described in Section 1, is a comprehensive planning document prepared on a regional scale that identifies priority water resources projects and programs with multiple benefits. The ARB IRWMP was adopted in May 2006. As projects/programs outlined in the IRWMP are implemented, the plan itself will be reviewed periodically to address changes, identify issues of concern, and provide for additional study and analysis. New projects/programs will continue to be identified and incorporated. The participants designed the IRWMP as a living document that can be readily updated as the needs of the region change over time. PCWA, Roseville, Lincoln, and CAW are involved in the ARB IRWMP through their participation in RWA.

Integrated Surface Water and Groundwater Modeling. Plan participants continue to use and build on existing groundwater models for the Western Placer County area. The Integrated Groundwater and Surface Water Model, or IGSM, is a finite element, quasi three-dimensional, numerical model that provides a comprehensive simulation of all major components of the hydrological cycle in accordance with mass balance and water budget accounting procedures. Elements of the hydrologic cycle addressed by IGSM include precipitation, runoff, groundwater recharge, evaporation, consumptive use, groundwater extraction and injection, and subsurface inflow and outflow along the model boundaries. The simulation also includes interactions between surface streams and lakes, and aquifers.



The IGSM, as a data intensive model, requires information like hydrogeology, hydrostratigraphy, land use, water use, and precipitation. An IGSM subregion, which is a group of model elements, typically represents a water district, irrigation district, city, other management areas, or unincorporated lands. Water and land use budgeting in the IGSM is performed on a subre-



gion-by-subregion basis. Two types of simulation runs are made using the: the dynamic run is mostly used for calibration of the model where changes in pumping and land use are occurring over time based on real or forecasted data; the static run is typically used for planning purposes and assists in looking at the change in the groundwater basin from one condition to another condition. Dynamic run calibrates input data using historical land use and water demand to produce a relationship in understanding how historical groundwater conditions are affected by historical hydrologic conditions. With fixed levels of land and water use, static runs are used to evaluate how the groundwater basin responds throughout a series of historical hydrologic conditions. This is typically the hydrologic period from water year 1922 to 1995.

Three IGSM applications, North American River, Sacramento County, and San Joaquin County IGSM (NARIGSM, SCNIGSM, and SJCIGSM), were developed under the American River Water Resources Investigation (ARWRI) in the 1990s to simulate groundwater conditions in the Sacramento Valley. These models joined together cover the North and South American groundwater subbasins in the Sacramento Valley Basin and part of the San Joaquin Valley Basin. These IGSM models have been updated and applied widely to regional and local groundwater studies. SGA is currently updating the portion of the SCNIGSM model that lies in northern Sacramento County.

<sup>&</sup>lt;sup>3</sup> American River Water Resources Investigation (ARWRI) was completely cooperatively between Bureau of Reclamation and DWR in the mid 1990's. Objectives of the ARWRI include meeting projected year 2030 water demands in the five counties (El Dorado, Placer, Sacramento, San Joaquin, and Sutter counties) and stabilizing the groundwater basins.

**Actions**— The plan participants will take the following action:

- Continue to move forward with existing WFA and IRWMP implementation efforts.
- Coordinate with SGA and Sutter County on regional hydrologic modeling efforts and updates.

### 3.9.2 Potential Future Integrated Planning Efforts

Along with integrating the above mentioned existing planning efforts, plan participants recognize that there are potential future integrated planning efforts as described below.

Roseville and PCWA are already implementing integrated planning and management in the region through participation in their respective water efficiency programs (see Section 3.8.2.), and through the Roseville's recycled water program (see Section 3.8.2.).

Although not integrated, the following are other planning efforts which the plan participants will work toward integrating when appropriate.

Urban Water Management Planning. Roseville, Lincoln, PCWA, and CAW are required to prepare Urban Water Management Plans (UWMP). These plans, as defined by CWC § 10610 et seq., require public water suppliers with more than 3,000 customers or that deliver more than 3,000 AF of water annually to identify conservation and efficient water use practices to help ensure a long-term, reliable water supply. As described in Sections 1.5.1.1., 1.5.2.1., 1.5.3.4., & 1.5.4.2., Roseville, Lincoln, PCWA, and CAW have submitted updated UWMPs to DWR.

- DWSAP Program. The DWSAP Program is administered by DHS. As a first step to a complete source protection program, DHS required water systems to conduct a preliminary assessment. The assessment includes the "delineation of the area around a drinking water source through which contaminants might move and reach that drinking water supply; an inventory of PCAs that might lead to the release of microbiological or chemical contaminants within the delineated area; and a determination of the PCAs to which the drinking water source is most vulnerable (http://www.dhs.ca.gov/ps/ddwem/dwsap/overview.htm)." The assessments only apply to agencies that deliver groundwater for public drinking water supply. Roseville and Lincoln have completed DWSAPs for their existing groundwater production wells.
- Land Use Planning. Effective January 1, 2002, State law required (SB610 and SB221) that a water supplier take certain actions to confirm sufficiency of water supply as a condition to approval of some new development projects. These actions involve the development of Water Supply Assessments and Written Verifications at the request of the land use authority. These documents provide an assurance that adequate water supplies are available before a project moves forward.

**Actions**— The plan participants will take the following action:

 Integrate other existing planning efforts where appropriate or communicate these planning efforts and subsequent planning actions to each plan participant.



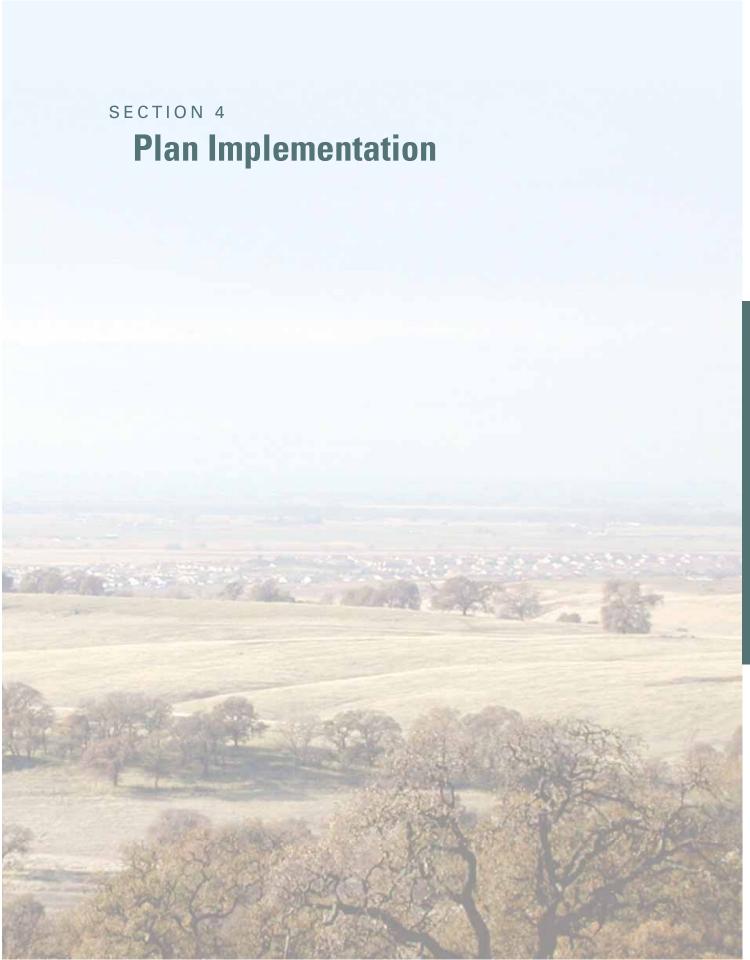
Table 3-4: Summary table listing Action Items and showing which BMOs they support.

Action Items Related to BMO	Management of the groundwater basin shall not have a significant adverse effect on	BMO No. 2.  Manage Groundwater Elevations to ensure an adequate groundwater supply for backup, emergency, and peak demands without adversely impacting adjacent areas.	BMO No. 3. Participate in State and Federal Land Surface Subsidence Monitoring Programs.	Adverse Impacts	BMO No. 5. Ensure Groundwater Recharge Projects Comply with State and Federal Regulations and protect beneficial uses of groundwater.			
Component No. 1 Stakeholder Involvement								
Involving the Public	✓	✓						
Involving Other Agencies Within & Adjacent to the WPCGMP area	<b>✓</b>	<b>✓</b>	✓	<b>√</b>	✓			
Using Advisory Committees	✓	✓	✓	✓	✓			
Developing Relationships with State and Federal Agencies	<b>✓</b>	<b>✓</b>	<b>✓</b>	✓	✓			
Pursuing Partnership Opportunities			<b>✓</b>		<b>√</b>			
Opportunities		Component No. 2 Monito	oring Program					
Groundwater Elevation Monitoring		✓			✓			
Groundwater Quality Monitoring	<b>√</b>				✓			
Land Surface Elevation Monitoring			✓					
Surface Water Groundwater Interaction Monitoring				✓				
Protocols for Collection of Groundwater Data	✓	✓						
Groundwater Data Management System	<b>✓</b>	✓	✓	✓	✓			
Component No. 3 Groundwater Resource Protection								
Well Construction Policies	✓							
Well Abandonment and Destruction Policies	✓							
Wellhead Protection Measures	✓							
Protection of Recharge Areas	✓							
Control of the Migration and Remediation of Contaminated Groundwater	✓							
Control of Saline Water Intrusion	✓							
	0	Component No. 4 Groundwa	ater Sustainability					
Conjunctive Management Activities	✓	✓	✓	✓	✓			
Demand Reduction	✓	✓	✓	✓	✓			
Component No. 5 Planning Integration								
Existing Integrated Planning Efforts (Urban Water Management Planning, DWSAP Program, Land Use Planning, and Integrated Surface water and								
Groundwater Modeling)	✓	✓	✓	✓	✓			

### 3.10 SUMMARY OF SECTION 3

**Table 3-4** provides a summary of Section 3 for quick reference and for use in further sections. The table correlates which activities are related to one or more BMOs.

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### **Plan Implementation**

his section summarizes the various plan implementation activities for the WPCGMP.

**Table 4-1** summarizes the action items presented in Section 3 with an implementation schedule. Many of these actions involve coordination by the plan participants with other local, State and Federal agencies within six months of the adoption of this GMP. A few activities involve assessing trends in basin monitoring data for the purpose of determining the adequacy of the monitoring network. These assessments will be made as new monitoring data become available for review by the plan participants and results will be documented in a biennial State of the Basin report.

### **4.1** BIENNIAL GMP IMPLEMENTATION REPORT

Plan participants will report on the progress made implementing the WPCGMP in a biennial State of the Basin report. The report will summarize groundwater conditions in the WPCGMP area and document groundwater management activities from the previous year. Much of the data used in the biennial State of the Basin report will come from the monitoring and successful implementation of the action items stated above and from data collected and potentially entered into a data management system (DMS). This report will include:

- A water budget: estimate of perennial yield;
- A description of data collection methods and frequencies;
- Identification of water quality constituents of concern with a summary and an interpretation of water quality data;
- Improved characterization of the groundwater basin through interpretation of the cross section(s);
- A summary and interpretation of groundwater elevation data;
- A summary of management actions during the period covered by the report with a discussion, supported by monitoring results, of whether these actions are achieving progress in meeting BMOs;
- Any special studies relevant to groundwater or the implementation actions; and
- A summary of any plan component changes, including the addition or modification of BMOs during the period covered by the report.

The biennial State of the Basin report will be completed by the second quarter of the first year and by the end of the first quarter every other year and will report on conditions and activities completed through December 31st of the prior year(s). The biennial State of the Basin report will try to coincide with SGA's State of the Basin reporting schedule.

### 4.2 FUTURE REVIEW OF WPCGMP

This WPCGMP is the first regionally coordinated groundwater management effort in Western Placer County. As such, implementation of many of the identified actions will likely evolve as the WPCGMP plan participant's appointed governance body actively manages and learns more about the subbasin. Many additional actions will also be identified in the biennial report described above. The WPCGMP is therefore intended to be a living document, and it will be important to evaluate all of the



actions and objectives over time to determine how well they are meeting the overall goal of the plan. The WPCGMP governance body plans to evaluate this entire plan within five years of adoption.

4.3 FINANCING

It is envisioned that implementation of the WPCGMP, as well as many other groundwater management-related activities will be funded from a variety of sources including the cost share program established by the WPCGMP plan participants in an implementation agreement; in-kind services by other agencies; State or Federal grant programs; and local, State, and Federal partnerships. Some of the items that would likely require additional resources include:

- Monitoring for groundwater quality or elevations in non-purveyor wells.
- Customization of the DMS interface.
- Preparation of WPCGMP biennial reports.
- Updates of the overall WPCGMP.
- Update of data sets and recalibration/improvement of existing groundwater model.
- Collection of future subsidence data.
- Construction of monitoring wells where critical data gaps exist.
- Stream-aquifer interaction studies.
- Implementation of the WPCGMP including:
- Committee coordination.
- Project management.

Implementation of regional conjunctive use program.

During year one of plan implementation, an estimate of some of the likely costs associated with the actions outlined in Table 4-1 will be prepared.



Table 4-1 Summary of WPCGMP Actions

Description of Action	Implementation Schedule	Reoccurance Schedule
Plan Component #1 - Stakeholder Involvement		
Involving the Public  Continue efforts to encourage public participation as opportunities arise.	6 months	On-going
. Review and take actions from a Public Outreach Plan as necessary during implementation of various	6 months	On-going
aspects of the WPCGMP.  Continue to provide briefings to the Water Forum Successor Effort on WPCGMP implementation	6 months	On-going
progress.  Work with basin stakeholders to maximize outreach on WPCGMP activities, including the use of	6 months	On gains
the plan and plan participants' websites.	6 Months	On-going
Involving other Agencies adjacent to the WPCGMP a		0
Continue a high level of involvement with SGA, SSWD, NCMWC, NID and other interested parties in implementing the WPCGMP.	6 months	On-going
Provide copies of the adopted WPCGMP and subsequent annual reports to representatives from the SGA, SSWD, NCMWC, NID and other interested parties.	12 months	24 months
Meet with representatives from the SGA, SSWD, NCMWC, NID and other interested parties,	6 months	On-going
as needed.  Coordinate a meeting with other self supplied groundwater pumpers in the WPCGMP area to inform	6 months	12 months
them of the plan participant's management responsibilities and activities, and develop a list of other	o monare	12 11011010
self supplied groundwater pumpers concerns and needs to the plan participant's management.  Coordinate a meeting with the agricultural groundwater pumpers in the WPCGMP area to inform	6 months	12 months
them of the plan participant's management responsibilities and activities, and develop a list of		
agricultural groundwater pumpers concerns and needs to the plan participant's management.  Utilizing advisory committees		
Upon adoption of the WPCGMP, the TRC will periodically meet to discuss scheduling and functions	6 months	6 months
to guide implementation of the plan and provide these recommendations to the WPCGMP governance body.		
Developing relationships with State and Federal Ager	ncies	
Continue existing and develop new working relationships with local, state, and federal regulatory agencies.	6 months	On-going
Pursuing Partnership Opportunities		
Continue to promote partnerships that achieve both local supply reliability and achieve broader	6 months	On-going
regional and statewide benefits.  Continue to track and apply for grant opportunities to fund regional groundwater management	6 months	On-going
activities and local water infrastructure projects.		_
Plan Component #2 - Monitoring Program Groundwater Elevation Monitoring		
Coordinate with DWR and others to identify an appropriate group of wells for monitoring a Fall 2007	6 months	12 months
and future groundwater elevation measurements.  Coordinate with DWR and others to ensure that the selected wells are maintained as part of a	6 months	12 months
long-term monitoring network.		
Coordinate with DWR to ensure that the timing of water level data collection by other agencies coincides within one month of DWR data collection. Currently, DWR collects water level data in the spring and fall.	6 months	12 months
Coordinate with other agencies to ensure that needed water level elevations are collected and	6 months	12 months
verify that uniform data collection protocols are used among the agencies  Consider ways to fill gaps in the monitoring well network by identifying suitable existing wells or	6 months	12 months
identifying opportunities for constructing new monitoring wells.		
Assess groundwater elevation trends and conditions based on the monitoring well network annually.  Assess the adequacy of the groundwater elevation monitoring network annually.	6 months 6 months	12 months 12 months
Identify a subset of monitoring wells that will be monitoring more frequently than twice annually to improve the plan participants' understanding of aquifer responses to pumping throughout the year.	6 months	12 months
Groundwater Quality Monitoring		10 "
Coordinate with cooperating agencies to verify that uniform protocols are used when collecting water quality data	6 months	12 months
Coordinate with local, state, and federal agencies to identify where wells may exist in areas with sparse groundwater quality data. Identify opportunities for collecting and analyzing water quality	6 months	12 months
samples from those wells.  Assess the adequacy of the groundwater quality monitoring well network annually.	6 months	12 months
Land Surface Elevation Monitoring		
Coordinate with other agencies, particularly DWR, USGS and SGA to determine if there are other suitable benchmark locations in the WPCGMP area to aid in the analysis of potential land surface subsidence	Immediately	24 months
Surface Water Groundwater Interaction Monitoring	g	
Work coorperatively with DWR and others to compile available stream gage data and information on tributary inflows and diversions from the Feather, Bear, and Sacramento Rivers to quantify net	12 months	12 months
groundwater recharge or discharge between gages in the WPCGMP area.		
Coordinate with local, state, and federal agencies to identify available surface water quality data from the Feather, Bear, and Sacramento rivers proximate to the WPCGMP area.	12 months	12 months
Correlate groundwater level data from wells in the vicinity of river stage data to further establish	12 months	12 months
whether the river and water table are in direct hydraulic connection, and if the surface water is gaining or losing at those points		
Continue to coordinate with local, state, and federal agencies and develop partnerships to investigate cost-effective methods that could be applied to better understand surface	12 months	On-going
water-groundwater interaction along the Feather, Bear, and Sacramento rivers.  Perform evaluations of accretion/depletion interactions for local streams that bisect the WPCGMP,	12 months	12 months
such as Auburn Ravine and Coon Creek.		
Protocols for the Collection of Groundwater Data Use a Standard Operating Procedure (SOP) for collection of water level data by each of the	6 months	On-going
cooperating agencies. Appendix C includes a SOP for Manual Water Level Measurements. This SOP was prepared using guidance documents available through the Environmental		
Protection Agency (EPA) and was included in a technical memorandum developed for SGA summarizing the accuracy and reliability of groundwater data (MWH, 2002).		
Provide cooperating agencies with guidelines on the collection of water quality data developed by	6 months	On-going
DHS for the collection, pretreatment, storage, and transportation of water samples (DHS, 1995).  Provide training on the implementation of these SOPs to cooperating agencies, if requested.	6 months	12 months
Groundwater Data Management System		
Provide users staff with training and use of a Data Management System (DMS).  Populate and update a DMS with available groundwater, water quality, well, and surface water data.	9 months 9 months	none 12 months
Develop list of recommended enhancements to a DMS.	15 months	12 months
Provide resources for maintaining and updating a DMS.	Immediately	On-going 12 months
Provide resources for maintaining, updating and utilizing a groundwater model or the North American River IGSM.  Develop and present an biennial State of the Basin Report	15 months 12 months	12 months

Description of Action	Implementation Schedule	Reoccurance Schedule
Plan Component #3 - Groundwater Resource Protec		Schedule
Well Construction Policies		
<ol> <li>Ensure that the SGA, SSWD, NCMWC, NID and others are provided a copy of the plan participants/Placer County's well ordinance and procedures and understand the proper well construction.</li> </ol>	6 months	none
<ol><li>Provide a copy of the most recently delineated plume extents (if any) to the SGA, SSWD, NCMWC, NID, and others.</li></ol>	6 months	none
<ol> <li>Coordinate with the SGA, SSWD, NCMWC, NID, and others to provide guidance as appropriate on well construction. Where feasible and appropriate, this could include the use of subsurface geophysical tools prior to construction of the well to assist in well design.</li> </ol>	6 months	none
Well Abandonment and Well Destruction Policies	3	
<ol> <li>Review DWR well records for all known wells in the WPCGMP area which were reported abandonment and destruction. Rate and provide a survey on the confidence of proper destruction based on the information provided on the report.</li> </ol>	6 months	none
<ol> <li>Ensure that the SGA, SSWD, NCMWC, NID, and others are provided a copy of the Roseville/ Lincoln/Placer County's code and understanding the proper destruction procedures and support implementation of these procedures.</li> </ol>	6 months	none
<ol><li>Follow up with the SGA, SSWD, NCMWC on the reported abandoned and destroyed wells to confirm the information collected from DWR. Follow up with the SGA, SSWD, NCMWC, and NID on the reported abandoned and destroyed wells to confirm the information collected from DWR.</li></ol>	6 months	none
4. Provide a copy of the information of abandoned and destroyed wells in Placer County to fill gaps in	6 months	none
County records (if any).  5. Meet with Placer County EMD and DWR to ensure that wells in the WPCGMP area are properly	6 months	none
abandoned or destroyed. 6. Meet with the Placer County Farm Bureau and Placer County Agricultural Commission to encourage them to help educate farmers regarding the identification and proper destruction of	6 months	none
abandoned wells.		
7. Obtain "wildcat" map from California Division of Oil and Gas to ascertain the extent of historic gas well drilling operations in the area as these wells could function as conduits to groundwater if not properly destroyed.	6 months	none
Wellhead Protection Measures		
Request that the SGA, SSWD, NCMWC, and NID provide vulnerability summaries from the DWSAP to the plan participants governance structure to be used for guiding management decisions in the basin.	6 months	none
Contact groundwater basin managers in other areas of the state for technical advise, effective management practices, and "lessons learned", regarding establishing wellhead protection areas.	6 months	none
Protection of Recharge Areas		
Develop a recharge program that identifies major natural recharge areas, quantifies current recharge rates, identifies potential sources of surface water that could be utilized for recharge, and methods for recharging groundwater.	24 months	none
2. Identify potential activities that could adversely affect recharge quantities or qualities and formulate	24 months	none
cohesive policies that the plan participants can use to manage or mitigate potential impacts.  Control of the mitigation and remediation of contaminated of	roundwater	
Map and monitor known contaminated sites while coordinating with known responsible parities     (if any) to develop a network of monitoring wells to act as an early warning system for public supply wells.	18 months	none
2. If detections occur in these monitoring wells, work with the responsible parties and the potentially impacted areas of the SGA, SSWD, NCMWC and NID to develop strategies to minimize the further spread of contaminants.	18 months	none
a). Provide the SGA, SSWD, NCMWC and others with all information on mapped contaminant plumes and LUST sites for their information in developing groundwater extraction patterns and in the siting of future production or monitoring wells.	18 months	none
Inform the SGA, SSWD, NCMWC, and NID of the presence of the interface and the approximate	18 months	none
depth of the interface below their service area for their reference when sitting potential wells.  5. Establish and isolate zones around known contamination plumes so as to limit the placement of production wells whose pumping might otherwise exacerbate the contamination. Add offset	18 months	none
requirements for landfills.  Control of Saline Water Intrusion		
1. Track the progression, if any, of saline water bodies moving toward the east from the Delta.  Because this is a highly unlikely scenario, this action will be limited to communicating with  DWR's Central District Office on a biennial basis to check for significant changes in TDS  concentrations in wells. DWR has a regular program of sampling water quality in select  production wells throughout the adjacent Solano, San Joaquin, and Yolo counties. This will  serve as an early warning system for the potential of saline water intrusion from the Delta.	12 months	24 months
Determine and monitor the elevation of the fresh water/saline water vertical interface. Analyze for trends in sodium, chloride, and TDS that may indicate upconing of saline water.	6 months	12 months
Observe TDS concentrations in plan participant's municipal wells that are routinely sampled under Title 22. This data will be readily available as part of the DMS and are already an on-going	6 months	12 months
task for the annual review of basin conditions.  Inform all stakeholders of the presence of the salinity interface and the approximate depth to the interface for their reference when sitting potential wells. The plan participants will also ensure that Placer County EMD, along with Roseville and Lincoln, issues well permits, is aware of the interface. The plan participants will provide a map indicating the contour of the elevation of the base of fresh water in Placer County to EMD for their reference when issuing well permits.	12 months	12 months
Plan Component #4 - Groundwater Sustainability Conjunctive Management Activities	/	
1. Continue to investigate conjunctive use opportunities within the WPCGMP area.	6 months	On-going
Continue to investigate opportunities for the development of direct recharge facilities in addition to in-lieu recharge (e.g. injection wells or surface spreading facilities, through constructed recharge basins or in river or streambeds.	6 months	On-going
Demand Reduction	-	
Continue to participate in their respective conservation efforts.     Coordinate with City of Lincoin, SGA, SSWD, NCMWC, NID, and others to investigate further opportunities for expanded use of recycled water throughout the WPCGMP area.	12 months 12 months	On-going On-going
Plan Component #5 - Planning Integration		
Existing Integrated Planning Efforts	0 months	24 mantha
Coordinate with SGA and Sutter County on regional hydrologic modeling efforts and updates.	9 months	24 months

### SECTION 5

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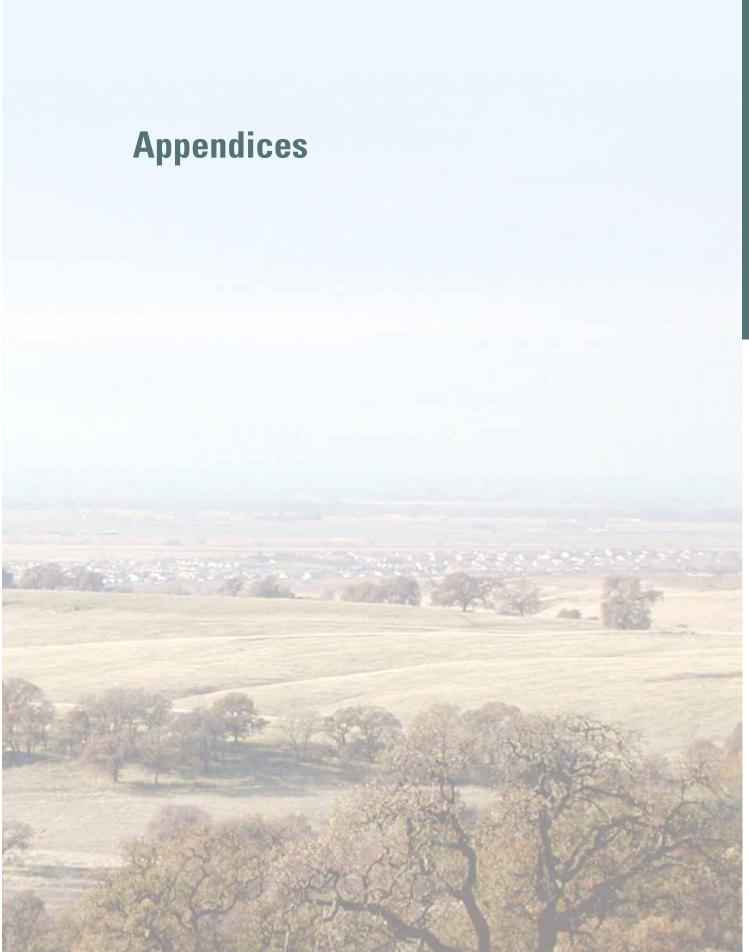
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## APPENDIX A

WPCGMP Participants' Public Notices

### NO 573 PUBLIC NOTICE

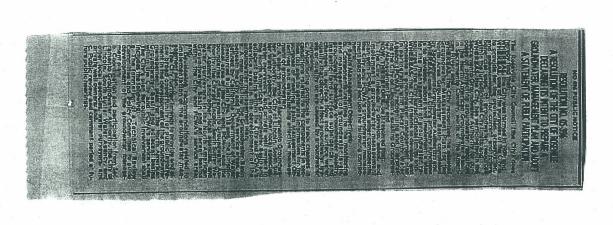
## NOTICE OF ROSEVILLE GTY COUNCIL MEETING AGAIDA ITEM FOR RESOLUTION OF INTENTION TO PREPARE A GROUNDWATER MANAGEMENT PLAN

The Roseville Environmental Utilities Department will ask the Roseville City Council to consider the adoption of a resolution of intention to prepare a Groundwater Management Plan (GMP) with Placer County Water Agency (PCWA) at its regularly scheduled 7:00 p.m., August 32, 2005 meeting. This matter will be included as an item on the Roseville City Council meeting agenda. The public is invited to attend the meeting which will be conducted at the Council Chambers located at the Council Chambers located at City Hall, 311 Vermon Street, Roseville CA.

The City of Roseville (City) has developed and uses groundwater as an integral part of its water supply portfolio. Although the City relies primarily on surface water, it occasionally uses groundwater to meet peak demands (partfoularly during summer months). Additionally, groundwater is a reliable supply for the City during drought. The objective of the City during drought. The objective of the GMP is to strengthen the City's understanding and enhance the management of the groundwater resource. For more information on the preparation of the GMP, please contact the City's Project Manger, Mr. Ken Glotzbach, City of Roseville Environmental Utilities Deparatment, at (916) 746-1751.

Run 2Ti, July 15 & 22, 2005

\$597.08 = 2 Fridays



### Milestones

of the Mare Island shipyard, St. Peter's Chapel and Officers' Row Mansions and gardens. A lunch will be hosted on the grounds. There will be a stop at the Jelly Belly fac-

tory on the way. The trip will take place

Recreation is offering a trip to the Strauss Festival in Elk Grove. The show features ele-gantly costumed dancers and professional musicians playing the music of Vienna's Waltz

King, Johann Strauss, Jr. The event takes place from

will get their chance to help at a Bloodsource Blood Drive, held from 11 a.m. to 5 p.m. today at the United Artists movie theater, 520 North Sunrise Ave.

For information call (800) 995-4420 extension 11014.

### www.rosevillept.com







Roseville – 3001 Lava Ridge Cr., Suite 250 \* 866-CHAPMAN \* www.claspman.edu/roseville Folsom – 50 Iton Point Circle, Suite 140 \* 866-CHAPMAN \* www.chapman.edu/folsom Yuba City – 1275 Tharp Road, Suite B \* 866-CHAPMAN \* www.chapman.edu/yubacity

Chapman University is accredited by, and its a member of, the Weatern Association of Schools and Colleges. Taucher training and choleskall programs are accredited by the Castonial Commission are Function Crestonialing.

### **PUBLIC NOTICE**

### Intent to Review and Adopt Proposed Western Placer County Groundwater Management Plan

The City of Roseville (City) will hold a public hearing to review and consider the adoption of the proposed Western Placer County Groundwater Management Plan (WPCGMP). The City has released a DRAFT version of the WPCGMP for public review. A copy of the proposed WPCGMP can be accessed online at www.wpcgmp.org or may be obtained for the cost of reproduction at the Office of the City Clerk, City of Roseville, located at City Hall, 311 Vernon Street, Roseville, CA.

The public hearing will be on July 18, 2007 at 7:00 p.m. at the regularly scheduled meeting of the City Council held in Council Chambers located at City Hall, 311 Vernon Street, Roseville, CA. The public is invited to provide comments on the WPCMP up to and including the close of the public comment portion of this agenda item at the City Council meeting scheduled for July 18, 2007. Any protests by landowners in the area covered under the WPCGMP must comply with the requirements set forth in Water Code section 10753.6 and be provided to the City of Roseville, in writing, prior to the close of the public comment portion of this agenda item at the July 18, 2007 7:00 p.m. meeting of the City

The WPCGMP outlines a series of actions to protect Roseville's crucial groundwater resources in the western portion of the County. The overall goal of the WPCGMP is to maintain water quality and to ensure the long term availability of groundwater to meet backup, emergency, and peak demands without adversely affecting other groundwater uses within the WPCMGP area. To achieve this goal, the WPCGMP sets forth five management objectives and five primary plan components identifying specific actions to be implemented for the purpose of maintaining the overall health of the underlying groundwater basin.

For more information please contact Ken Glotzbach at (916) 746-1751 or kglotzbach@roseville.ca.us.

affected by Down syn-drome in Placer County and beyond.

"I look at (Malachi), he's an absolute joy, he's the love of our lives — both boys are the loves of our lives," Haskin said. "That was kind of my urge to start the coalition, because there are other families

like us out there."

Haskin operates the coalition out of the family's Roseville home. Haskin has a bachelor's degree in child development and worked with children with disabilities for more than a decade before Malachi was born.

"I loved it, and after Malachi was born I just real-ly felt this is what I was called to do," she said. "I just felt like God put it in my

The coalition is designed to educate the public and to provide charitable resources,

intelahear.com



PICO VAN HOUTRYVE/THE PRESS TO lachi Haskin's parents say the is capable of accomplishing son is capable of accompany same goals as any young boy.

"The one comment we get they keep coming back, is that it's so positive, the focus is so positive," Haskin said. "People tell me I'm not being realistic. I'm just choosing to focus on the positive instead of dwelling on the negative." Haskin said she wishes

ven harder.
The Haskins and

coalition volunteers are currently focusing their efforts on Cruisin' for Down Syndrome, a car show and family friendly event that will be held at the Gold Country Fairgrounds in Auburn today.

The car show, in its

third year, is actually the reason the coalition exists in the first place, Haskin said. Kahla Campbell, a family friend and Folsom High graduate, planned and produced the inaugural car show and donated the proceeds to Haskin as start-up money for the

coalition.

"We just love doing the car show," she said. "My husband and I love cars – our first date was a car show – and we try to take something everybody loves, but also do something to raise awareness. In everything we do, we try to raise awareness."

The inaugural show pro-

in a run way. Weimar resident Cynthia

Meikle said she and her husto have a network of people with kids who have the same diagnosis," Cynthia Meikle

and they re just like any other children. They're special and unique."

### **PUBLIC NOTICE**

### Intent to Review and Adopt Proposed Western Placer County Groundwater Management Plan

The City of Roseville (City) will hold a public hearing to review and consider the adoption of the proposed Western Placer County Groundwater Management Plan (WPCGMP). The City has released a DRAFT version of the WPCGMP for public review. A copy of the proposed WPCGMP can be accessed online at www.wpcgmp.org or may be obtained for the cost of reproduction at the Office of the City Clerk, City of Roseville, located at City Hall, 311 Vernon Street, Roseville, CA.

The public hearing will be on July 18, 2007 at 7:00 p.m. at the regularly scheduled meeting of the City Council held in Council Chambers located at City Hall, 311 Vernon Street, Roseville, CA. The public is invited to provide comments on the WPCMP up to and including the close of the public comment portion of this agenda item at the City Council meeting scheduled for July 18, 2007. Any protests by landowners in the area covered under the WPCGMP must comply with the requirements set forth in Water Code section 10753.6 and be provided to the City of Roseville, in writing, prior to the close of the public comment portion of this agenda item at the July 18, 2007 7:00 p.m. meeting of the City Council.

The WPCGMP outlines a series of actions to protect Roseville's crucial groundwater resources in the western portion of the County. The overall goal of the WPCGMP is to maintain water quality and to ensure the long term availability of groundwater to meet backup, emergency, and peak demands without adversely affecting other groundwater uses within the WPCMGP area. To achieve this goal, the WPCGMP sets forth five management objectives and five primary plan components identifying specific actions to be implemented for the purpose of maintaining the overall health of the underlying groundwater basin.

For more information please contact Ken Glotzbach at (916) 746-1751 or kglotzbach@roseville.ca.us.



With Coupon Only. Limit 2 hearing aids per person. Expires 7/6/07 Some restrictions may apply. Redeemable at all locations.

### McDonald Hearing Aid Center

1400 X Street, Ste 300 · Sacramento · 916.444.5537 106 N Sunrise Ave. Ste C3 • Roseville • 916.786.8040 2344 Butano Drive, Ste C-3 · Sacramento · 916.239.4445 433 F Street • Lincoln • 916.434.9901 (By Appointment Only)

## RESOLUTION NO. 07-426

## ADOPTING THE WESTERN PLACER COUNTY GROUNDWATER MANAGEMENT PLAN

groundwater management plan; and WHEREAS, on August 3, 2005, the City Council authorized staff to prepare a

WHEREAS, in order to promote regionally consistent and cooperative groundwater management goals and objectives, staff proposed development of a joint plan with Placer County Water Agency; and

WHEREAS, the Ground Water Management Plan was prepared in accordance with the California Groundwater Management Act, AB3030 and SB 1938; and

County Groundwater Management Plan; WHEREAS, the City Council has reviewed the proposed Western Placer

Roseville hereby adopts the Western Placer County Groundwater Management Plan, pursuant to California Water Code Section 10753. NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of

PASSED AND ADOPTED by the Council of the City of Roseville this 1st day August \_\_\_, 2007, by the following vote on roll call:

NOES

COUNCILMEMBERS: Allard, Roccucci, Garcia, Garbolino, Gray

AYES

COUNCILMEMBERS: None

ABSENT COUNCILMEMBERS: None

Placer County Water Agency
PO BOX 6570
Auburn, CA 95604

DECLARATION OF PUBLICATION (C.C.P. 2015.5)

COUNTY OF SACRAMENTO

STATE OF CALIFORNIA

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interest ed in the above entitled matter. I am the printer and principal clerk of the publisher of The Sacramento Bee, printed and published in the City of Sacramento, County of Sacramento, State of California, daily, for which said newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Sacramento, State of California, under the date of September 26, 1994, Action No. 379071; that the notice of which the annexed is a printed copy, has been published in each issue thereof and not in any supplement thereof on the following dates, to wit:

October 19, 26, 2006

Ti October 19, 26, 2006

l certify (or declare) under penalty of perjucy that the foregoing is rune and correct and that this declaration was executed at Sacramento, California, on October 26, 2006.

(Signature)

NO 302 PLBLIC NOTICE
NOTICE OF PLACES COUNTY WATER AGENCY
BOARD OF DIRECTORS MEETING AGENCY
FOR RECOLLINDO OF INTERTION TO PREPARE
AN UPDATED WEST PLACES GOODDWATER
MANAGEMBAT PLAN
MANAGEMBAT PLAN

The Piecer County Water Agency of the Trace United By Agency County of the Agency of the Agency County of the Agency County of the Agency County of the Agency of the Agency County of the Agency County of the Agency County of the Agency of the Agen

Auburn, CA 95604 Placer County Water Agency PO BOX 6570

DECLARATION OF PUBLICATION (C.C.P. 2015.5)

COUNTY OF SACRAMENTO

STATE OF CALIFORNIA

Sacramento, State of California, under the date of September 26, 1994, a resident of the County aforesaid; thereof on the following dates, to wit: thereof and not in any supplement has been published in each issue which the annexed is a printed copy, Action No. 379071; that the notice of the Superior Court of the County of a newspaper of general circulation by said newspaper has been adjudged State of California, daily, for which publisher of The Sacramento Bee, the printer and principal clerk of the ed in the above entitled matter. I am years, and not a party to or interest I am a citizen of the United States and Sacramento, County of Sacramento, printed and published in the City of am over the age of eighteen

November 9, 16, 2006

on November 16, 2006. executed at Sacramento, California, perjury that the foregoing is true and correct and that this declaration was I certify (or declare) under penalty of

NO 433 PUBLIC NOTICE

RESOLUTION NO. 06 - 45 OF THE BOARD OF DIRECTORS OF THE PLACER COUNTY WATER AGENCY DECLARING ITS INTENT TO UPDATE ITS WEST, PLACER GROUNDWATER MANUSCHART PLAN AND JODOPT A STATEMBIT

rectors of the Placer County Water Apency that the Apard of Di-WHEREAS, The Agency intends to prepare, adopt, and triple-ment this updated aroundwater manascrient plan up satinorship with the City of Roseville, the City of Lincoln, and Placer County; WHEREAS, the agency-edopred a West Placer Groundwerer wanagement Plan on October 6, 1998 and updated this plan on New Yember 4, 2003, and WHEREAS, the Kelerick peeds to undate the 2003 bins to reflect current wells resources planning investor in lacer County sharings to its indirected water Resources Flan accepted on Au-guetty, 2005, and respectory

The Baryf intents to presert actors and initial alternation of the present actors and initial alternation of the present actors and initial actors and initial actors actors and initial actors actors and initial actors and initial actors actors and initial actors actors and initial actors actors

ABSENT DIRECTORS: Pauline Reccucci

Signed and approved by me after its peasage into and day of November 2000, on the state of the s Placer County Water Agency

ATTEST Clerk. Board of Directors Placer County Water Agoncy

VHEREAS, one of the responsibilities of Placer County Water Agency (Agenty) is to provide for sustainable use of groundwater resources within Placer County, and OF PUBLIC PARTICIPATION

The foregoing insolution was duly process at seeing of the place country by the country of the place country by the country of the place country by the country of the place o NOES DIRECTORS: None The Agency Winher Interest to Percular Sociation and allowing to the Control of t

Sout of (Signature)

## PROOF OF PUBLICATION

## STATE OF CALIFORNIA County of Placer

newspaper of general circulation, which is printed and published in the City of Auburn, County of Placer. This newspaper has been judged a newspaper of general circulation by the Superior Court of the State of California, in and for the County of Placer, on the date of May 26, 1952 (Case Number 17407). The notice, of which the Placer County. I am over the age of eighteen years, and not a party to the below mentioned matter. I am the principal clerk of The Auburn Journal, a than nonpareil) has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit: attached is a printed copy (set in type not smaller am a citizen of the United States and a resident of

November 9, 16

In the year of 2006

is true and correct I certify, under penalty of perjury, that the foregoing

Signature

Dated in Auburn, California

November 16, 2006

The following space is reserved for the County Clerk's filing stamp

PROOF OF PUBLICATION OF

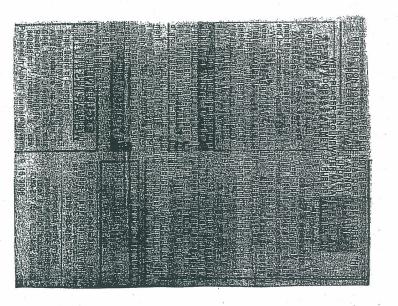
1614290

16147A8

Public Notice

See attached

PROOF OF PUBLICATION THE AUBURN JOURNAL 1030 High St. P.O. Box 5910 Auburn, CA 95604-5910



PROOF OF PUBLICATION
THE AUBURN JOURNAL
1030 High St. P.O. Box 5910
Auburn, CA 95604-5910

## PROOF OF PUBLICATION

## STATE OF CALIFORNIA County of Placer

I am a citizen of the United States and a resident of Placer County. I am over the age of eighteen years, and not a party to the below mentioned matter. I am the principal clerk of The Auburn Journal, a newspaper of general circulation, which is printed and published in the City of Auburn, County of Placer. This newspaper has been judged a newspaper of general circulation by the Superior Court of the State of California, in and for the County of Placer, on the date of May 26, 1952 (Case Number 17407). The notice, of which the attached is a printed copy (set in type not smaller than nonparell) has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

October 19

26

In the year of 2006

certify, under penalty of perjury, that the foregoing

is true and correct

Signature

Dated in Auburn, California

October 26, 2006

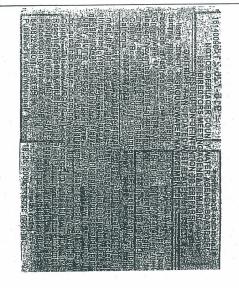
The following space is reserved for the County Clerk's filing stamp

PROOF OF PUBLICATION OF

16140090

Notice of Placer County Water Agency Board of

Directors Meeting Groundwater Mgt. Plan



### NO 452 PUBLIC NOTICE

### Intent to Review and Consider Adoption of An Updated West Placer County Groundwater Management Plan

The Flacer County Water Agency (Agency) will hold a public hearing to review and consider the adoption of an updated West Placer County Croundwater Management Plan (WPCGMP). The Agencyhas released a DRAFT version of the updated WPCGMP for public review. A copy of the proposed updated wPCGMP can be accessed online at updated wPCGMP can be accessed of the cost of reproduction at the Agency's Business Center located at 144 Ferguson Road in Auburn, CA.

The public hearing will be on August 16, 2007 at 2:00 p.m., at the regularly scheduled meeting of the Agency Board of Directors located at the Business Center. The public is invited to provide comments on the probles dupdated where the public comments on the probles dupdated where the public comment portion of this agendate metal the Board meeting scheduled for August 16, 2007. Any profest by landowners in the area covered under the WPCGMP in the area covered under the WPCGMP in California Warter Code Section 10/23,6 and be provided to the Placer County Water Agency, in writing, phor to the dose of the public comment portion of this agendatem at the August 6, 2007 2:00 pm, meeting of the Board of Directors.

The reasons for updating the Agency's West Placer County Groundwater Management Plan are to reflect progress made towards conjunctive use in west Placer County and to establish an inter-agency document that aligns policy. This plan was prepared in partnership with the City of Roseville, City of Lincoln, and California-American Water Company. In summary, the proposed WPCGMP outlines a series of actions to project crucial groundwater resources in the western portion of the County. The overall goal of the WPCGMP is to maintain water guality and to ensure the long term availability of groundwater to meet backup, emergency, and peak demands without adversely affecting other groundwater uses within the WPCMSP area. To adhieve this goal, the updated WPCGMP sets forth five management objectives and five primary plan components identifying spedic actions to be implemented for the purpose of maintaining the overall health of the undertwing groundwater basin, actions of the WPCGMP sets forth the participants of the plan development.

For more information please contact TonyFirenziat (530) 823-4886 or Hirenzi@cwa.net.

W.

16189229

PUBLIC NOTICE

Intent to Review and Consider Adoption of An Updated West Placer County Groundwater Management Plan

the updated WPCGMP for public review. A copy of the proposed updated WPCGMP can be accessed online at www.pcwa.net or may be obtained for the and consider the adoption of an updated West Placer County Groundwater Management Plan (WPCGMP). The Agency has released a DRAFT version of The Placer County Water Agency (Agency) will hold a public hearing to review cost of reproduction at the Agency's Business Center located at 144 Ferguson Road in Auburn, CA.

The public hearing will be on August 16, 2007 at 2:00 p.m. at the regularly Scheduled meeting of the Agency Board of Directors located at the Business scheduled meeting of the Agency Board of Directors located at the Business Center. The public is invited to provide comments on the proposed updated WPCMP up to and including the close of the public comment portion of this was agenda item at the Board meeting scheduled for August 16, 2007. Any protests agenda item at the Board meeting scheduled for August 16, 2007. Any protests agenda item at the Board forth in California Water Code Section 1075.36 and be requirements set forth in California Water Agency, in writing, prior to the close of the provided to the Placer County Water Agency, in writing, prior to the close of the public comment portion of this agenda item at the August 16, 2007 2:00 p.m. meeting of the Board of Directors.

California-American Water Company. In summary, the proposed WPCGMP outlines a series of actions to protect crucial groundwater resources in the western portion of the County. The overall goal of the WPCGMP is to maintain water quality and to ensure the long term availability of groundwater to meet water quality. Management Plan are to reflect progress made towards conjunctive use in west Placer County and to establish an inter-Agency document that aligns policy. This plan was prepared in partnership with the City of Roseville, City of Lincoln, and WPCGMP sets forth five management objectives and five primary plan components identifying specific actions to be implemented for the purpose of maintaining the overall health of the underlying groundwater basin. Actions of the WPCGMP will be implemented in partnership with the participants of the backup, emergency, and peak demands without adversely affecting other groundwater uses within the WPCMGP area. To achieve this goal, the updated The reasons for updating the Agency's West Placer County Groundwater

For more information please contact Tony Firenzi at (530) 823-4886 or plan development

Published in Auburn Journal: August 2, 9, 2007 tfirenzi@pcwa.net

### AGENDA

## BOARD OF DIRECTORS PLACER COUNTY WATER AGENCY

September 6, 2007 2:00 p.m., Regular Meeting

Placer County Water Agency Business Center American River Room 144 Ferguson Road Auburn, California

## Members of the Board of Directors:

LOWELL JARVIS, District 3
Chairman of the Board

GRAY ALLEN, District 1
ALEX FERREIRA, District 2

an of the Board

MIKE LEE, District 4, Vice Chairman

OTIS WOLLAN, District 5

\*\*\*

- CALL TO ORDER
- 1. Roll Call
- Pledge of Allegiance
  Introductions & Presentations
- B. PUBLIC COMMENT: This is the time for any member of the public to address the Board of Directors on any matter not on the agenda that is within the subject matter jurisdiction of the Agency. Directors and Agency staff are limited by law to brief responses and clarifying questions to such comments and Directors may request staff to report back to the Board concerning such matter and direct staff to put the matter on a future agenda. Any item that is on this agenda may be addressed by the public during the Board's consideration of that item. Comments shall be limited to *five minutes* per person, or such other time limit as may be imposed by the Chair, in order to enable the Board to complete its agenda within a reasonable period of time.
- C. REPORTS BY DEPARTMENT HEADS
- D. AGENDA CHANGES AND REVIEW

- Approve and file:
- a. August 2, 2007, minutes.
- Check Register 07-16 expenses disbursed.
- 9 Matters related to the Board of Directors as follows: Budget transfers, as recommended by the Director of Financial that may be included as part of specific items that follow. Services. See attached and other non-routine budget transfers
- <u>a</u>
- Expenses for previous months;
- Anticipated costs of transportation, lodging, and associated fees for travel outside the State of California to be paid by the Agency; Anticipated expenses in excess of \$500.00; none at this time. none at this time.
- General Manager's expense reimbursement claim summary.
- N with Keith K. Clayton. Approve Quitolaim of Easement for portion of the Sugarloaf Canal pipe Receive Report on Review for CEQA for Lakeshore Water Treatment
- ω and authorize the filing of the Notice of Exemption. Plant Grading project, declare the project categorically exempt from CEQA
- 4 to Mary O. Dutra for the easements for the Foothill Raw Water Supply Approve Right of Way and Easement Agreement and payment of \$5,000 Pipeline project.
- 5 Resources Association Board of Directors for the term 2008-09 name to Association of California Water Agencies for the National Water Approve the Submittal of PCWA General Manager David A. Breninger's
- 0 Approve passage of Resolution No. 07-\_\_ adopting the updated West Placer County Groundwater Management Plan.
- 7 Adopt Resolution No. 07-\_\_ initiating proceedings for annexation of Dry Creek Elementary School to Zone No. 1 and setting a public hearing thereon.
- φ Receive and file PCWA's bond rating upgrade dated July 2007.

AGREEMENTS AND CONTRACTS: Items listed below include award of bid proposals, new contracts, sole source contracts and agreements, amendments to existing construction contracts and professional services agreements, and various change orders, and may be approved by one motion or some combination thereof.

π

### Award:

- Approve the following with Black and Veatch:
- a. Engineering Services Contract for various Middle Fork Project Betterments.
- b. Task Order No. 2007-01 for Middle Fork Betterments in an amount not to exceed \$25,740.00.
- 2. Approve Settlement Agreement between Placer County Water Agency and Sacramento Municipal Utility District and authorize General Manager to send letters to the State Water Resources Control Board and to the Federal Energy Regulatory Commission as provided in the agreement.

### Existing:

- 3. Approve Amendment No. One with Starr Consulting for treatment plant water quality consulting services for the Auburn Water Treatment Plant project, Ophir WTP Pipelines project, and the Sacramento River Diversion project in an amount not to exceed \$19,690.00.
- Approve the following for the Foothill Raw Water Supply Pump Station project, Contract #2005-09, with Pacific Mechanical Corporation:
- a. Contract Change Order No. Twenty One in the increased amount of \$46,839.00.
- b. Progress Pay Estimate No. Seventeen in the amount of \$3,462,542.05.
- 5. Approve Amendment No. One to the On-call Supervisory and Data Acquisition Services Consulting Contract with MCC Control Systems, LP in an amount not to exceed \$100,000.00.
- 6. Approve Change Order No. 1 for Contract P-06-02 Paving Services, Intermountain Slurry Seal, Inc., to extend the contract period through September 12, 2008, with a possible price increase, not to exceed 5%.
- Approve Amendment No. Three to contract with Richard C. Harlan for fiveyear safety inspections and reports for French Meadows and Hell Hole Dams.

## WATER AVAILABILITY AND WATER SUPPLY

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- Zone 1 water service; take action as appropriate.
- Treated Water
- 1) Four Facilities Agreements (FA) for a total of 7.5 acre feet or 11.5 equivalent dwelling units (EDUs)
- FA 2193, Sierra de Montserrat, Amendment No. Two, Loomis
- FA 2223, Wade Simmons Waterline, Revision No. 1, Newcastle
- FA 2284, Jack in the Box, Rocklin
- FA 2392, Stanford Plaza Lot 58 Phase 1B, Rocklin
- Single Connections (In fill): Four applications for a total of 2.6 acre feet or 4.0 EDUs
- Raw Water: None
- io Zone 4 water service; take action as appropriate.
- Treated Water
- 1) Two Facilities Agreements (FA) for a total of 9.2 acre feet or 14.0 EDUs
- FA 2287, Timilick Phase 2 Residential (formerly Eaglewood Phase 2 Residential), Revision No. 1, Martis Valley
- FA 2342, Martis Camp Unit No. 2, (formerly Siller Ranch), Amendment No. 1, Martis Valley
- ω appropriate. Requests for response from Agency on water availability; take action as
- SB 221 (tentative map)
  SB 610 (environmental process)
- All other requests or information
- 4 Reports and response on water resource policy, planning and management issues and interests; take action as appropriate:
- Water rights and contracts
- Land use and water policy
- Water supply, service, and infrastructure system
- Water use efficiency and conservation American River Pump Station Project
- Sacramento River Diversion Project
- Regional water matters
- Delta and State water matters

# MIDDLE FORK AMERICAN RIVER PROJECT, (FERC PROJECT 2079). RELICENSING PROGRAM

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- Report on relicensing process, schedule, and activities; take action as appropriate.
- Report on financial matters and services; take action as appropriate

### GENERAL ITEMS

- Receive report on Renewal and Replacement Projects and Water Connection Charge Projects to be undertaken within the next five years.

  Take action as appropriate.
- Consider the following for Agency's intention to undertake Renewal and Replacement and Water Connection Charge Projects; take action as appropriate:
- a. At 2:00 p.m. or as soon thereafter as can be heard, open the noticed public hearing, note any comments received by the Agency and solicit comments from the public with respect to the Agency's intention to
- undertake projects.

  b. If comments are received which are sufficient to warrant modifications, the hearing may be continued to a later Board of Directors' meeting to allow sufficient time for the Agency to respond to comments.
- c. If no comments are received which are sufficient to warrant continuation of the hearing, staff recommends that the Board adopt Resolution No. 07-\_\_determining to proceed with projects.
- Consider \$35 million of 2007 debt for Capital Improvement Projects and adopt Resolution No. 07-\_\_ authorizing the sale of Second Senior Water Revenue Certificates of Participation, Series 2007, and associated debt documents and related actions. Take action as appropriate.

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- (NOTE: Prior to adoption, temporarily adjourn as PCWA Board of Directors and convene as the Board of Directors of the PCWA Public Facilities Corporation in special session; see Supplemental Agenda attached.)
- Review activities scheduled for PCWA Fiftieth Anniversary commemoration.
- J. REPORTS BY DIRECTORS: In accordance with Government Code § 54954.2(a), Directors may make brief announcements or brief reports on their own activities. They may ask questions for clarification, make a referral to staff or take action to have staff place a matter of business on a future agenda.

- K. REPORTS BY LEGAL COUNSEL
- L. REPORTS BY GENERAL MANAGER
- M. CLOSED SESSION
- N. REPORT FROM CLOSED SESSION
- O. ADJOURNMENT

## THE NEXT RESOLUTION NUMBER IS 07-25

In compliance with the Americans with Disabilities Act, if you need special assistance to participate in this meeting, please contact the Clerk to the Board at (530) 823-4860. Notification by Wednesday noon preceding the meeting will enable the Agency to make reasonable arrangements to ensure accessibility to this meeting. [28 CFR 35.102-35.104 ADA Title II]

In accordance with Government Code Sec. 54954.2(a) this notice and agenda were posted in the Agency's outdoor bulletin board at the Placer County Water Agency Business Center at 144 Ferguson Road, Auburn, California, on August 31, 2007.

## Schedule of Upcoming Board Meetings

- Thursday, September 13, 2007, 5:30 p.m. Special Board of Directors meeting at Placer County Water Agency Business Center, 144 Ferguson Road, Auburn, California. 50th Anniversary Celebration
- Thursday, September 20, 2007, 2:00 p.m. Regular Board of Directors meeting at Placer County Water Agency Business Center, 144 Ferguson Road, Auburn, California.

## RESOLUTION NO. 07- 25\_ OF THE BOARD OF DIRECTORS OF THE PLACER COUNTY WATER AGENCY ADOPTING THE UPDATED WEST PLACER COUNTY GROUNDWATER MANAGEMENT PLAN

WHEREAS, On November 2, 2006 the Board of Directors passed Resolution 06-45 declaring its intent to update its West Placer County Groundwater Management Plan and adopt a statement of public participation; and

WHEREAS, the Agency prepared an updated plan in partnership with the City of Roseville, City of cooperative goals and objectives; and Lincoln, and California-American Water Company in order to promote regionally consistent and

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of the Placer County Water WHEREAS, the updated West Placer County Groundwater Management Plan was prepared in accordance with the California Groundwater Management Act, Assembly Bill 3030, and Senate Bill 1938; and

Agency hereby adopts the updated West Placer County Groundwater Management Plan

The foregoing resolution was duly passed at meeting of the Board of Directors of the Placer County Water Agency held on September 6, 2007, by the following on roll call:

AYESDIRECTORS: Gray Allen, Alex Ferreira, Mike Lee, Otis Wollan, and Chairman Lowell Jarvis NOES DIRECTORS: None

ABSENT DIRECTORS: None

Signed and approved by me after its passage this 6th day of September, 2007.

Chair, Board of Directo Placer County Water Agenc

Placer County Water/Agency Clerk, Board of Dire

z:/ns.wpgmp.rcsolution.9-6-07

To: Sharon Crawford
Cc: Greg Young
Subject: Re: City of Lincoln legal notice of public hearing From: legals [mailto:legals@goldcountrymedia.com] Sent: Wednesday, November 22, 2006 9:07 AM

#### Scheduled as requested

The order number will change with every ad you place with us. Your order number is: # 16144303 this is the number that I will need if you call me.

Good luck. To view your legals on line it has to be done the day it is published only. Do the following:

- goldcountrymedia.com.
   Gold Country Media Front.
   On the left side click on paper name.
   Go to classified, Legals/Public Notices.

Thank for placing your legal ad with Gold Country Media Legal Department.

#### Legal Advertising Consultant Direct phone number (916) 774-7946 Sent: Tuesday, November 21, 2006 11:46 AM From: Sharon Crawford To: legals@goldcountrymedia.com Subject: City of Lincoln legal notice of public hearing Cc: Greg Young ---- Original Message ---

Wendy,

Please publish the attached legal notice in the 11/30<sup>th</sup> and the 12/7<sup>th</sup> issues of the Lincoln News Messenger. Please confirm receipt of this e-mail.

If you have any questions, please call me. Thank you,

Sharon Crawford

Office Supervisor Public Works Department

640 Fifth Street Lincoln, CA 95648 (916) 645-8576 (916) 645-6152 (fax)

---Original Message--

From: gyoung@tullyandyoung.com [mailto:gyoung@tullyandyoung.com] Sent: Thursday, December 07, 2006 4:16 PM

To: Greg Young

Subject: Email-A-Friend for goldcountryclassifieds.com classifieds

This ad was sent to you by gyoung@tullyandyoung.com from http://www.goldcountryclassifieds.com/.

to adopt a resolution of intention to (1) prepare an update to the City of Lincoln Groundwater Management Plan (GMP), adopted in November 2003, and (2) cooperate in the preparation of the Western Placer County Groundwater GIVEN</B> that the City Council of the City of Lincoln will conduct a public hearing on Tuesday, December 12, 2006 at the hour of 6:30 p.m. or thereafter at the McBean Park Pavilion, 65 McBean Park Drive, regarding the City's intent Management Plan (WPCGMP) with the City of Roseville, the Placer County Water Agency and the County of Placer, pursuant to the Groundwater Management Act attend.<br/>
If you have questions, please contact John Pedri in the Department of Public Works at (916) 645-8576.<br/>
BR> Published in Lincoln News (California Water Code §10750 et seq.). Interested persons are invited to 16144303<BR> <B>NOTICE OF PUBLIC HEARING<BR> </B> Messenger: November 30, December 7, 2006 <B>NOTICE IS HEREBY

please visit the website http://abuse.townnews.com and create an This e-mail contains information for the purpose of tracking abuse. associated with this message. Click the link below to view the incident. http://abuse.townnews.com/?MailID-bd7830f0bc7752322b285db02c16599c incident report. From this site you can also block messages like If you believe this email is offensive or may be considered spam, this from sending to your email address. Please retain this Mail-ID [bd7830f0bc7752322b285db02c16599c], it's needed to view information

Read the acceptable use policy: http://systems.townnews.com/public/aup/

## **RESOLUTION NO. 2006-259**

A RESOLUTION OF THE LINCOLN CITY COUNCIL
OF INTENTION TO (1) CO-DRAFT THE WESTERN PLACER COUNTY
GROUNDWATER MANAGEMENT PLAN WITH THE CITY OF ROSEVILLE,
PLACER COUNTY WATER AGENCY AND PLACER COUNTY, AND
(2) UPDATE THE CITY OF LINCOLN'S 2003 GROUNDWATER
MANAGEMENT PLAN PURSUANT TO THE GROUNDWATER
MANAGEMENT ACT (WATER CODE, §§ 10750 et seq.)

WHEREAS, pursuant to the Groundwater Management Act (Water Code, §§ 10750 et seq.) the City of Lincoln (City) adopted a Groundwater Management Plan (GMP) in November of 2003; and

WHEREAS, the adopted City of Lincoln GMP addressed the monitoring and management associated with the portion of the basin directly underlying the City; and

WHEREAS, the City has been actively implementing management actions included in the adopted GMP; and

WHEREAS, the Groundwater Management Act encourages the periodic review and update of adopted GMPs; and

WHEREAS, the Utility Director desires to update the City's adopted GMP to reflect actions taken over the past two (2) years since its adoption; and

WHEREAS, the City of Roseville and the Placer County Water Agencies also have adopted groundwater management plans in recent years; and

WHEREAS, the City of Lincoln, the City of Roseville, the Placer County Water Agency, and the County of Placer (hereinafter referred to as the Parties) have service areas that include the same groundwater basin; and

WHEREAS, it is the expressed intent of the Legislature to encourage local agencies to work cooperatively to manage groundwater resources within their jurisdictions; and

WHERESAS, the Parties recognize the value of cooperating for more effective groundwater management as it relates to the overall quality and reliability of this collective resource in the broader groundwater basin; and

WHEREAS, the City of Lincoln is a local agency authorized to adopt a groundwater management plan, whether an update of the City-only GMP or a regional plan, pursuant to the provisions of the Groundwater Management Act; and

WHEREAS, Water Code §10753.2 requires that, before preparing a Groundwater Management Plan, a local agency must first hold a public hearing to consider whether to adopt a Resolution of Intent to Draft a Groundwater Management Plan; and

WHEREAS, following the publication of notice required by law, the City held a public hearing on <a href="December 12, 2006">December 12, 2006</a>, to receive public comment on whether it should adopt a resolution of intention to (1) update the City of Lincoln GMP and (2) co-draft a regional Groundwater Management Plan; and

WHEREAS, after considering the public comment and other information presented at the hearing, the Lincoln city Council determined that it is in the best interest of the City to (1) prepare an update to its currently adopted GMP, and (2) participate with the other Parties in the cooperative preparation of a regional Groundwater Management Plan.

# NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF LINCOLN DOES HEREBY RESOLVE AS FOLLOWS:

- The Lincoln City Council deems it advisable and in the best interest of the City to (1) prepare an update to the City of Lincoln GMP, adopted in November 2003, and (2) cooperate in the preparation of the Western Placer County Groundwater Management Plan with the City of Roseville, the Placer County Water Agency and the County of Placer.
- The City hereby declares its intention to (1) update the 2003 GMP, and (2) codraft the Western Placer County Groundwater Management Plan, pursuant to Water Code §10750 et seq.
- The Director of Public Works is directed to take any additional action necessary and appropriate to implement this resolution.

**PASSED and ADOPTED** this 12<sup>th</sup> day of December, 2006, by the following roll call vote:

AYES: COUNCILMEMBERS: Stackpoole, Cosgrove, Short, Santini, Nakata NOES: COUNCILMEMBERS:

ATTEST:

ABSENT:

COUNCILMEMBERS

Patricia Avila CITY CLERK

oto. Tonnory

Date: January 25, 2007

Publish: February 1, 2007 and February 8, 2007

Customer No. 17C1160

----- Message from "Greg Young" <gyoung@tullyandyoung.com> on Thu, 4 Oct 2007 12:25:36

0800 ----To: "Greg Young" <gyoung@tullyandyoung.com>, "Greg Young" <gyoung@tullyandyoung.co Subject: Greg Young wanted you to see this (from GoldCountryClassifieds.com)

From: Greg Young,

16201689

NOTICE OF PUBLIC HEARING

Plan (WPCGMP), pursuant to the Groundwater Management Act Lincoln will conduct a public hearing on Tuesday, October 23, 2007 at the hour of 6:30 p.m. or thereafter at the McBean Park Pavilion, 65 NOTICE IS HEREBY GIVEN that the City Council of the City of adoption of the Western Placer County Groundwater Management McBean Park Drive, regarding the City's intent to review and consider (California Water Code §10750 et seq.). Interested persons are invited to attend.

www.wpcgmp.org or may be obtained for the cost of reproduction in the City's Public Works Department, at 640 Fifth Street, Lincoln, CA A copy of the proposed WPCGMP can be accessed online at

Works at (916) 645-8576. If you have questions, please contact John Pedri, Director of Public

Patricia Avila

City C lerk

Date: October 1, 2007

Published in Lincoln News Messenger: October 4, 11, 2007

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---- Message from "Sharon Crawford" <scrawfor@ci.lincoln.ca.us> on Mon, 6 Nov 2006 08:14:12 To: "Greg Young" <gyoung@tullyandyoung.com>

Subject: FW: Staff Report and Resolution for GMP

Greg,

Gwen found the reso & staff report as attached.

Sharon

From: Gwendolyn Scanlon
Sent: Monday, November 06, 2006 8:10 AM
To: Sharon Crawford
Subject: Staff Report and Resolution for GMP

Thanks,

Gwen

Gwendolyn Scanlon
Office Assistant II
Department of Public Works
City of Lincoln
640 Fifth Street
Lincoln, CA 95648
916-645-4070 ext. 227
916-645-6152 fax

W





## CITY COUNCIL/REDEVELOPMENT AGENCY MEETING AGENDA

# A CLOSED SESSION WILL BE HELD AT 5:30 PM, NOVEMBER 27, 2007, IN THE MAIN CONFERENCE ROOM OF CITY HALL, 640 FIFTH STREET TO DISCUSS:

Conference with Real Property Negotiator-City Manager- Pursuant to Government Code Section 54956.8 – APN #019-290-003 – Sundance - Lakeview Properties, LLC et al

November 27, 2007 6:30 PM

PLEASE NOTE: THE CITY COUNCIL MEETING WILL BE HELD AT THE MCBEAN PARK PAVILION, LOCATED AT 65 MCBEAN PARK DRIVE, LINCOLN, CALIFORNIA 95648.

- **ROLL CALL**
- N PLEDGE OF ALLEGIANCE

INVOCATION - Bill Rontani, St. James Episcopal Church

- ω PRESENTATIONS - none
- 4 CONSENT AGENDA

### NOTICE TO THE PUBLIC

All matters listed under the Consent Agenda are considered to be routine and all will be enacted by one motion. There will be no separate discussion of these items unless a member of the City Council or a citizen requests a specific item to be removed from the Consent Agenda for separate action. Any items removed will be considered after the

- CITY MANAGER'S DEPARTMENT
- C B > 5
- Adopt Resolution 2007-196 approving warrants of October 29 and November 5, 2007. Approve minutes of the November 13, 2007 Council meeting.

  Adopt Resolution 2007-197 in support of issuing a Tom Bradley commemorative stamp.

COMMUNITY DEVELOPMENT DEPARTMENT

- Ordinance 827B adding Section 16.48.060 to the Lincoln Municipal Code Pertaining to Temporary Political signs. (second reading).
- LIBRARY
- P. 5.3 Approve Administrative Policy No. 99 regarding Library Meeting Room Policy.

#### 9 CITIZENS ADDRESSING THE COUNCIL

## Policy for Citizens Addressing the Council:

As in the past, we will listen respectfully to what any citizen addressing Council may have to say regarding an item NOT scheduled for a public hearing or another matter of concern affecting the City of Lincoln. However, those addressing the Council will be limited to five to the podium will be disregarded or ruled out of order. ALL comments/questions should be addressed to the Mayor. In most cases questions will be either answered during the meeting, in writing, or in some cases, the issue will be set for a future agenda. minutes, unless extended by the Mayor. Comments from the audience WITHOUT coming

#### 7. **PUBLIC HEARINGS**

### 7.1 COMMUNITY DEVELOPMENT DEPARTMENT

Ordinance 828B Amending Chapter 15 of the Lincoln Municipal Code Pertaining to the Adoption of International and Uniform Building Codes

Council needs to allow for a staff report regarding the proposed Ordinance amending Chapter 15 of the Lincoln Municipal Code.

#### Action Required:

- -Open the required public hearing to receive testimony.

   Waive reading and introduce **Ordinance 828B** amending Chapter 15 of the Lincoln Municipal Code pertaining to the adoption of International and Uniform Building Codes.

#### STAFF REPORTS

00

#### 8.1 CITY MANAGER'S DEPARTMENT

P Relocation Plan and Move for the Lincoln Archives Building

subsequent move of the Lincoln Archives Council needs to allow for a brief staff report regarding the relocation plan and

#### Action Required:

assistance of the Public Works Department to accomplish this move -Approve the relocation plan of the Lincoln Archives to the Civic Center with the offer of

#### 8.2 PUBLIC WORKS DEPARTMENT

P Western Placer County Groundwater Management Plan

Council needs to allow for a brief staff report regarding the Western Placer County Groundwater Management Plan (WPCGMP).

#### Action Required:

Groundwater Management Plan and (2) Approving the Memorandum of Agreement for Motion to adopt Resolution 2007-198 (1) Adopting the Western Placer County

Implementation of the Western Placer County Groundwater Management Plan (WPCGMP) and authorizing the City Manager and City Clerk to execute the WPCGMP.

Quiet Zone Evaluation of Public Streets at Grade Crossings of the Union Pacific Railroad Tracks Within the City of Lincoln

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Council needs to allow for a staff report and PowerPoint presentation regarding the Quiet Zone Evaluation draft report prepared by Railroad Controls Limited.

Action Required:
-Provide staff with further direction.

COUNCIL INITIATED BUSINESS

9.

- COUNCIL COMMITTEE REPORTS
- ADJOURNMENT

11 10.

## RESOLUTION NO. 2007- 198

## A RESOLUTION OF THE LINCOLN CITY COUNCIL TO (1) ADOPT THE WESTERN PLACER COUNTY GROUNDWATER MANAGEMENT PLAN, AND (2) APPROVE THE MEMORANDUM OF AGREEMENT FOR IMPLEMENTATION OF THE WESTERN PLACER COUNTY GROUNDWATER MANAGEMENT PLAN

WHEREAS, pursuant to the Groundwater Management Act (Water Code, §§ 10750 et seq.) the City of Lincoln (City) adopted a Groundwater Management Plan (GMP) in November of 2003; and

WHEREAS, the adopted City of Lincoln GMP addressed the monitoring and management associated with the portion of the basin directly underlying the City; and

WHEREAS, the City has been actively implementing management actions included in the adopted GMP; and

WHEREAS, the Groundwater Management Act encourages the periodic review and update of adopted GMPs; and

WHEREAS, the City of Lincoln, City of Roseville, Placer County Water Agency and California-American Water Company have jointly prepared the Western Placer County Groundwater Management Plan (WPCGMP) to join together in a regional plan; and

WHEREAS, the City of Lincoln, following required public noticing, held a Public Hearing on the WPCGMP on October 23, 2007; and

WHEREAS, the City of Lincoln is a local agency authorized to adopt a groundwater management plan, and

WHEREAS, the City of Lincoln, City of Roseville, Placer County Water Agency and California-American Water Company have also drafted a Memorandum of Agreement for Implementation of the WPCGMP (Implementation MOA), and

WHEREAS, the Implementation MOA addresses how the Parties intend: (1) to coordinate their efforts in implementing the WPCGMP; (2) to memorialize the Parties' express understanding relating to such efforts; and (3) to allocate costs to be expended in administering the WPCGMP's implementation, and

WHEREAS, after considering the public comment and other information presented at the hearing, the Lincoln City Council determined that it is in the best interest of the City to (1) adopt the WPCGMP, and (2) approve the Implementation MOA.

## DOES HEREBY RESOLVE AS FOLLOWS: NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF LINCOLN

- The Lincoln City Council deems it advisable and in the best interest of the City to (1) adopt the Western Placer County Groundwater Management Plan, and (2) approve the Memorandum of Agreement for the Implementation of the Western Placer County Groundwater Management Plan.
- 2 The City hereby agrees to (1) adopt the Western Placer County Groundwater Management Plan, and (2) approve the Memorandum of Agreement for the Implementation of the Western Placer County Groundwater Management
- The Director of Public Works is directed to take any additional action

PASSED and ADOPTED this 27th day of November, 2007, by the following roll call necessary and appropriate to implement this resolution.

AYES: vote: COUNCILMEMBERS: Stackpoole, Cosgrove, Short, Santini, Nakata

NOES: COUNCILMEMBERS: None

ABSENT: COUNCILMEMBERS: None

Kent Nakata, Mayor

ATTEST:

APPROVED AS TO FORM:

Patricia Avila, City Clerk

City Attorney

### APPENDIX B

WPCGMP Public Outreach Plan

# WESTERN PLACER COUNTY GROUNDWATER MANAGEMENT PLAN

## TASK 2.4: STAKEHOLDER INVOLVEMENT

#### Semina

Developed in stages since early 2005, the Western Placer County Groundwater Management Plan (GMP) is a collaborative effort by local water purveyors to monitor urban pumping of groundwater reserves during normal and wet years. Moreover, by employing groundwater management practices that maintain and enhance underground supplies in Western Placer County, the program will provide for greater water supply reliability during drought periods. The GMP's staged approach stems from the inclusion of new partners at various intervals in the planning process, with the City of Roseville serving as the original proponent. Other partners, in order of their formal inclusion, are Placer County Water Agency (PCWA), City of Lincoln, and California American Water (CalAm). Although Placer County is not yet a formal participant in the GMP, staff has been active participants.

When completed, the GMP will feature four key elements, the content of these satisfy Senate Bill 1938 requirements: basin goals, basin management objectives (BMOs), plan components, and management actions. All major GMP elements have been developed and reviewed by staff at each partner agency. These elements are now ready for presentation to elected officials, key stakeholders and other interested parties for their input and feedback.

#### Goals and Objectives

Provide a public involvement mechanism for elected officials, water purveyors, farmers, ranchers, environmentalists and other interested parties to comment, validate and rank current and future GMP measures and action items. Through various public outreach methods, plan proponents will seek to gather support and acceptance of the proposed GMP.

#### Discussion

MWH will facilitate presentations/workshops to the boards/councils of each partner agency and conduct a public meeting for key stakeholders and other interested parties. Meetings will be supported by public notices, creation of a stakeholder database, a public website and a GMP Workbook.

## 2.4.1: BOARD/COUNCIL PRESENTATIONS:

MWH will facilitate one presentation to the boards/councils of each partner agency (total of five). Presentations will feature a 15-minute PowerPoint presentation, followed by a 30 minute question-and-answer session. The presentation schedule, in order, will be City of Roseville, Placer County Water Agency, City of Lincoln, CalAm, and Placer County. MWH will further coordinate presentations to the City of Roseville Public Utilities Commission and the Water Caucus of The Water Forum. MWH will also attend various one-on-one briefings with locally elected officials as necessary. Stakeholder interest cards will be provided at each meeting for members of the public wishing to be added to the stakeholder database.

#### Supporting elements:

- Agenda Packet: GMP and Joint Powers Agreement (JPA) administrative drafts, and GMP Fact Sheet
- Print and electronic copies of the GMP PowerPoint presentation
- Stakeholder interest cards

## 2.4.2: STAKEHOLDER INVOLVEMENT:

MWH will facilitate a partner-led public meeting at a location geographically convenient for interested parties and key stakeholders, such as Nevada Irrigation District, South Sutter Water District, Natomas Central Mutual Water Company, Rio Linda/Elverta Community Water District, and Yuba County Water Agency. Beverages and light snacks will be served. The three-hour workshop will present the GMP, gather stakeholder feedback, and provide attendees the opportunity to rank how various actions and measures meet their expectations. Overarching components of the GMP will be posted on a stand-alone website for stakeholders to review prior to the workshop.

#### Supporting elements:

- GMP Workbook
- **GMP** Website
- Public Notices
- Stakeholder Database

#### Workshop Invitees:

- All Neighboring Water Purveyors
- Environmental Caucus of The Water Forum
- Placer County Farm Bureau
- Placer County Agriculture Commissioner
- Placer County Planning Commission
- Developers, major landowners Environmental groups
- The Nature Conservancy, Sierra Club, Foothill Water Network, Dry Creek Conservancy/American Basin Water shed group (Linda Creek, Coon Creek, Secret Ravine, Aubum Ravine, Dry Creek)

## 2.4.3: SUPPORTING ELEMENTS:

- GMP Workbook MWH will develop a 16-page workbook for distribution at the GMP Workshop. The black and white workbook will be printed two-sides on 8.5x11 inch paper, folded once to form a 5.5x8.5 booklet. The document will serve two key functions: a vehicle to inform stakeholders of plan actions and measures; and as a stakeholder survey. The GMP Workbook will be divided into four chapters Goals, Basin Management Objectives, Plan Components and Management Actions. Participants will be provided opportunities to rate elements on a sliding scale and provide written revisions. The document may be collected at the meeting or returned by U.S. Mail. Survey results will be compiled and utilized for completion of the GMP.
- GMP Website MWH will develop a five-page project website. This site will support the Stakeholder Workshop and serve as a vehicle to distribute draft documents for public comment. The recommended URL is www.wpcgmp.org. Written to a layperson, the site will include:
- Home To contain names of each partner agency, synopsis of the program.
- Background Historical account of the groundwater basin and the chronology of project proponent participation.
- About Brief review of project purpose and key elements as required by state regulation
- Documents A repository for posting the GMP Fact Sheets, GMP Workbook, PowerPoint presentations, and other materials.
- Contact Us To include project proponents and the consultant team.
- Public Notices MWH will prepare public notices for publication in local newspapers by project proponents, as necessary, in support of the Stakeholder Workshop.

• Stakeholder Database – MWH, in collaboration with project proponent staff, will compile a database of key stakeholders. This list will include mail, email, phone and fax. It will also incorporate contact information collected via stakeholder interest cards collected at board/council presentations.

Chapter Title

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Final Administrative Draft

## APPENDIX C

**Standard Operation Procedures for Groundwater Elevation Monitoring** 

## STANDARD OPERATING PROCEDURE

For

MANUAL WATER LEVEL MEASUREMENTS

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-i-

May 2007

## I.0 SCOPE AND APPLICATION

The purpose of this Standard Operating Procedure (SOP) is to set guidelines for the determination of the depth to water and separate phase chemical product (i.e., gasoline or oil) in a water supply well, monitoring well, or piezometer. These standard operating procedures may be varied or changed as required, dependent on site conditions, and equipment limitations. In all instances, the actual procedures employed will be documented and described on the field form. Mention of trade names or commercial products does not constitute endorsement or recommendation for use.

Generally, water-level measurements taken in piezometers, or wells are used to construct water table or potentiometric surface maps and to determine flow direction as well as other aquifer characteristics. Therefore, all water level measurements in a given district should preferably be collected within a 24-hour period and the WPCGMP area within one week. However, certain situations may produce rapidly changing groundwater levels that necessitate taking measurements as close in time as possible. Large changes in water levels among wells may be indicative of such a condition. Rapid groundwater level changes may occur due to:

- Atmospheric pressure changes
- Changes in river stage, impoundments levels, or flow in unlined ditches
- Pumping of nearby wells
- Precipitation
- Tidal influences

## 2.0 METHOD SUMMARY

A survey mark should be placed on the top of the riser pipe or casing as a reference point for groundwater level measurements. If the lip of the riser pipe is not flat, the reference point may be located on the grout apron or the top of the outer protective casing (if present). The measurement reference point should be documented on the groundwater level data form. All field personnel must be made aware of the measurement reference point being used in order to ensure the collection of comparable data. Before measurements are made, water levels in piezometers and monitor wells should be allowed to stabilize for a minimum of 24 hours after well construction and development. Measurements in water supply wells need to be noted as questionable if pumping has or is occurring. In low yield situations, recovery of water levels to equilibrium may take longer. All measurements should be made as accurately as possible, with a minimum accuracy of 0.1 feet. Future measurements may have to be more accurate (measurements to the nearest 0.01 foot may be needed for conjunctive use projects, etc.). Ideally, the minimum measurement accuracy is 0.1 feet and the recommended accuracy is 0.01 feet.

If there is reason to suspect groundwater contamination, water level measuring equipment must be decontaminated and, in general, measurements should proceed from the least to the most contaminated wells. This SOP assumes an absence of contamination and no need for air monitoring or decontamination.

Open the well and monitor the headspace with the appropriate air-monitoring instrument if the presence of volatile organic compounds is suspected. For electrical sounders lower the device into the well until the water surface is reached as indicated by a tone or meter deflection. Record the distance from the water surface to the reference point. Measurement with a chalked tape will

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necessitate lowering the tape below the water level and holding a convenient foot marker at the reference point. Record both the water level as indicated on the chalked tape section and the depth mark held at the reference point The depth to water is the difference between the two readings. Remove measuring device, replace riser pipe cap, and decontaminate equipment as necessary. Note that if a separate phase is present, an oil/water indicator probe is required for measurement of product thickness and water level.

## 3.0 POTENTIAL PROBLEMS

- Cascading water, particularly in open-hole or rock wells, may interfere with the measurement.
- . Some older types of electric sounders are only marked at five-foot intervals. A surveyor's tape is necessary to extrapolate between the 5-foot marks.
- Oil or other product floating on the water column can insulate the contacts of the probe on an electric sounder and give false readings. For accurate level measurements in wells containing floating product, a special oil/water level indicator is required, and the corrected water level must be calculated.
- Tapes (electrical or surveyor's) may have damaged or missing sections, or may be spliced inaccurately.
- 5. An airline may be the only available means to make measurements in sealed production wells but the method is generally accurate only to approximately 0.2 foot.
- 6. When using a steel tape, it is necessary to lower the tape below the water level in order to make a measurement. This assumes knowledge of the approximate groundwater level.

#### 4.0 EQUIPMENT

The electric water level indicator and the chalked steel tape are the devices commonly used to measure water levels. Both have an accuracy of 0.01 feet. Other field equipment may include:

- Air monitoring instrumentation
- Well depth measurement device (sounder)
- Chalk
- Ruler
- Site logbook
- Paper towels and trash bags
- Decontamination supplies (assumed unnecessary)
- Groundwater level data forms

### 5.0 PROCEDURES

#### 5.1 Preparation

- Determine the number of measurements needed, the methods to be employed, and the equipment and supplies needed.
- Decontaminate or pre-clean equipment, and ensure that it is in working order.
- Coordinate schedule with staff and regulatory agency, if appropriate.

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- If this is an initial visit, perform a general site survey prior to site entry in accordance with a current approved site specific Health and Safety Plan (id applicable).
- 5. Identify measurement locations

#### 5.2 Procedures

Procedures for determining water levels are as follows:

- If possible, and when applicable, start at those wells that are least contaminated and proceed to those wells that are most contaminated.
- 2. Rinse all the equipment entering the well.
- Remove locking well cap, note well ID, time of day, and date on the groundwater level data form.
- Remove well cap.
- 5. If required by site-specific condition, monitor headspace of well with a photoionization detector (PID) or flame ionization detector (FID) to determine presence of volatile organic compounds, and record results in logbook.
- 6. Lower water-level measuring device into the well. Electrical tapes are lowered to the water surface whereas chalked steel tapes are lowered generally a foot or more below the water surface. Steel tapes are generally chalked so that a 1-to 5-foot long section will fall below the expected water level.
- 7. For electrical tapes record the distance from the water surface, as determined by the audio signal or meter, to the reference measuring point and record. For chalked tapes, an even foot mark is held at the reference point, once the chalked section of the tape is below the water level. Both the water level on the tape and the foot mark held at the reference point is recorded. The depth to the water is then the difference between the two readings. In addition, note the reference point used (top of the outer casing, top of the riser pipe, ground surface, or some other reproducible position on the well head). Repeat the measurement.
- Remove all downhole equipment, replace well cap and locking steel caps.
- . Rinse all downhole equipment and store for transport to the next well.
- 10. Note any physical changes, such as erosion or cracks in protective concrete pad or
- 11. Note any physical changes, such as erosion or cracks in protective concrete pad or variation in total depth of well on groundwater level data form.

## 6.0 CALCULATIONS

To determine groundwater elevation above mean sea level, use the following equation:

$$E_w = E - D$$

where:

 $E_W$ 

Elevation of water above mean sea level (feet) or local datum

Elevation above sea level or local datum at point of measurement (feet)

Depth to water (feet)

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## 7.0 QUALITY ASSURANCE/QUALITY CONTROL

The following general quality assurance/quality control (QA/QC) procedures apply:

- 1. All data must be documented on the groundwater level data forms.
- All instrumentation must be operated in accordance with operating instructions as supplied by the manufacturer, unless otherwise specified.
- Each well should be tested at least twice in order to compare results. If results do not agree to within 0.02 feet, a third measurement should be taken and the readings averaged. Consistent failure of consecutive readings to agree suggests that levels are changing because of one or more conditions as indicated in Section 1, and should be noted on the field form.
- Results should be compared to historical measurements while in the field and significant discrepancies noted and resolved if possible.
- Wells for which no or questionable measurements are obtained need to have the codes entered on the field form as follows:

	No Measurement	Ques	Questionable Measurement
0	Discontinued	0	Caved or deepened
1	Pumping	_	Pumping
2	Pumphouse locked	2	Nearby pump operating
w	Tape hung up	w	Casing leaking or wet
4	Can't get tape in casing	4	Pumped recently
O	Unable to locate well	υı	Air or pressure gauge
			measurement
6	Well destroyed	6	Other
7	Special	7	Recharge operation at nearby well
00	Casing leaking or wet	<b>∞</b>	Oil in casing
9	Temporarily inaccessible		
D.	Dry well		
Ŧ.	Flowing well		

- The surveyor(s) must complete all fields on the field form and initial. Upon return from the field, appropriate corrective actions need to be communicated and completed prior to the next survey event.
- All data entered into electronic spreadsheet or database should be double-keyed or hard copy printed and proofed by a second person.
- 8. Questionable wells or measurements noted during data compilation need to result in corrective actions if applicable.

## 8.0 HEALTH AND SAFETY

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Western Placer County Groundwater Management Plan Standard Operating Procedure for Manual Water Level Measurements - Appendix C

This SOP assumes that only uncontaminated wells are being measured. If not, a current approved site Health and Safety Plan should be consulted..

#### 9.0 REFERENCES

Driscoll, F.G. 1986. Groundwater and Wells. Second Edition. Chapter 16. Collection and Analysis of Pumping Test Data. pp 534-579. Johnson Filtration Systems Inc. St. Paul, Minnesota.

U.S. Environmental Protection Agency (USEPA), 1986. RCRA Groundwater Monitoring Technical Enforcement Guidance Document, pp. 207.

USEPA, 1987, A Compendium of Superfund Field Operations Methods. EPA/540/p-87/001 Office of Emergency and Remedial Response Washington, D.C. 20460.

USEPA, 2000. Environmental Response Team SOP 2043, 10 pages Feb. 11 2000.

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## APPENDIX D

# **AGENCIES - RESOLUTIONS OF ADOPTION**

## RESOLUTION NO. 2007- 198

## A RESOLUTION OF THE LINCOLN CITY COUNCIL TO (1) ADOPT THE WESTERN PLACER COUNTY GROUNDWATER MANAGEMENT PLAN, AND (2) APPROVE THE MEMORANDIM OF AGREEMENT FOR

## (2) APPROVE THE MEMORANDUM OF AGREEMENT FOR IMPLEMENTATION OF THE WESTERN PLACER COUNTY GROUNDWATER MANAGEMENT PLAN

WHEREAS, pursuant to the Groundwater Management Act (Water Code, §§ 10750 et seq.) the City of Lincoln (City) adopted a Groundwater Management Plan (GMP) in November of 2003; and

WHEREAS, the adopted City of Lincoln GMP addressed the monitoring and management associated with the portion of the basin directly underlying the City; and

WHEREAS, the City has been actively implementing management actions included in the adopted GMP; and

WHEREAS, the Groundwater Management Act encourages the periodic review and update of adopted GMPs; and

WHEREAS, the City of Lincoln, City of Roseville, Placer County Water Agency and California-American Water Company have jointly prepared the Western Placer County Groundwater Management Plan (WPCGMP) to join together in a regional plan; and

WHEREAS, the City of Lincoln, following required public noticing, held a Public Hearing on the WPCGMP on October 23, 2007; and

WHEREAS, the City of Lincoln is a local agency authorized to adopt a groundwater management plan, and

WHEREAS, the City of Lincoln, City of Roseville, Placer County Water Agency and California-American Water Company have also drafted a Memorandum of Agreement for Implementation of the WPCGMP (Implementation MOA), and

WHEREAS, the Implementation MOA addresses how the Parties intend: (1) to coordinate their efforts in implementing the WPCGMP; (2) to memorialize the Parties' express understanding relating to such efforts; and (3) to allocate costs to be expended in administering the WPCGMP's implementation, and

WHEREAS, after considering the public comment and other information presented at the hearing, the Lincoln City Council determined that it is in the best interest of the City to (1) adopt the WPCGMP, and (2) approve the Implementation MOA.

# NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF LINCOLN DOES HEREBY RESOLVE AS FOLLOWS:

- The Lincoln City Council deems it advisable and in the best interest of the City to (1) adopt the Western Placer County Groundwater Management Plan, and (2) approve the Memorandum of Agreement for the Implementation of the Western Placer County Groundwater Management Plan.
- The City hereby agrees to (1) adopt the Western Placer County Groundwater Management Plan, and (2) approve the Memorandum of Agreement for the Implementation of the Western Placer County Groundwater Management Plan
- The Director of Public Works is directed to take any additional action necessary and appropriate to implement this resolution.

necessary and appropriate to implement this resolution.

PASSED and ADOPTED this 27th day of November, 2007, by the following roll call

vote:

AYES: COUNCILMEMBERS: Stackpoole, Cosgrove, Short, Santini, Nakata

NOES: COUNCILMEMBERS: None

ABSENT: COUNCILMEMBERS: None

Kent Nakata, Mayor

ATTEST:

APPROVED AS TO FORM:

Patricia Avila, City Clerk

City Attorney

# RESOLUTION NO. 07- 25\_ OF THE BOARD OF DIRECTORS OF THE PLACER COUNTY WATER AGENCY ADOPTING THE UPDATED WEST PLACER COUNTY GROUNDWATER MANAGEMENT PLAN

WHEREAS, On November 2, 2006 the Board of Directors passed Resolution 06-45 declaring its intent to participation; and update its West Placer County Groundwater Management Plan and adopt a statement of public

WHEREAS, the Agency prepared an updated plan in partnership with the City of Roseville, City of Lincoln, and California-American Water Company in order to promote regionally consistent and cooperative goals and objectives; and

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of the Placer County Water WHEREAS, the updated West Placer County Groundwater Management Plan was prepared in accordance with the California Groundwater Management Act, Assembly Bill 3030, and Senate Bill 1938; and

The foregoing resolution was duly passed at meeting of the Board of Directors of the Placer County Water Agency held on September 6, 2007, by the following on roll call:

Agency hereby adopts the updated West Placer County Groundwater Management Plan.

AYESDIRECTORS: Gray Allen, Alex Ferréira, Mike Lee, Otis Wollan, and Chairman Lowell Jarvis NOES DIRECTORS: None

ABSENT DIRECTORS: None

Signed and approved by me after its passage this  $6^{th}$  day of September, 2007.

Chair, Board of Directors
Placer County Water Agency

Placer County Water/Agency Clerk, Board of Dire

z:/ns.wpgmp.resolution.9-6-07

### RESOLUTION NO. 07-426

#### S.

## ADOPTING THE WESTERN PLACER COUNTY GROUNDWATER MANAGEMENT PLAN

WHEREAS, on August 3, 2005, the City Council authorized staff to prepare a groundwater management plan; and

WHEREAS, in order to promote regionally consistent and cooperative groundwater management goals and objectives, staff proposed development of a joint plan with Placer County Water Agency; and

WHEREAS, the Ground Water Management Plan was prepared in accordance with the California Groundwater Management Act, AB3030 and SB 1938; and

WHEREAS, the City Council has reviewed the proposed Western Placer County Groundwater Management Plan;

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Roseville hereby adopts the Western Placer County Groundwater Management Plan, pursuant to California Water Code Section 10753.

PASSED AND ADOPTED by the Council of the City of Roseville this 1st day

f\_\_\_\_\_\_, 2007, by the following vote on roll call:

AYES COUNCILMEMBERS: Allard, Roccucci, Garcia, Garbolino, Gray

NOES COUNCILMEMBERS: None

ABSENT COUNCILMEMBERS: None

TTEST:

O Land









#### WESTERN PLACER COUNTY GROUNDWATER MANAGEMENT PLAN



Appendix D-2	North American Groundwater Basin	

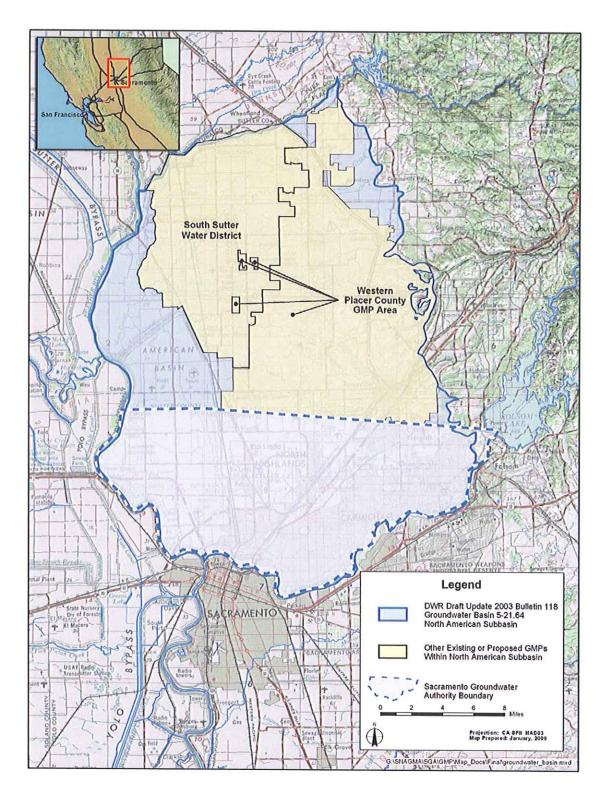


Figure 2. Location of North American Groundwater Subbasin

Appendix D-3	SGA Area of North American Groundwater Basin and Hydrog	raphs

Figure 6. Representative Groundwater Hydrographs in the SGA Area

December 2008

# **Appendix D-4 2004 Reclamation Master Plan**



# CITY OF LINCOLN Reclamation Master Plan

**December 2004** 

Prepared for:

**City of Lincoln** 

Prepared by:

**ECO:LOGIC Engineering** 

**ECO:LOGIC** 



# CITY OF LINCOLN Reclamation Master Plan

### December 2004

Prepared for:

City of Lincoln 640 Fifth Street Lincoln, CA 95648

Prepared by:

ECO:LOGIC Engineering 3875 Atherton Road Rocklin, CA 95765 Tel. (916) 773-8100 Fax. (916) 773-8448



# City of Lincoln –Reclamation Master Plan

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## Introduction

### **BACKGROUND**

The City of Lincoln (City) is currently constructing a wastewater treatment and reclamation facility (WWTRF) for the purpose of treating and disposing of wastewater generated within the City of Lincoln General Plan area. Upon start-up in 2004, the WWTRF is expected to produce an average dry weather flow (ADWF) of approximately 2.4 million gallons per day (mgd) with an increase to as much as 6 mgd over the next 5 to 10 years. The initial permitted treatment capacity of the WWTRF will be 3.3 mgd. At build-out of the current City General Plan, the City is expected to generate an average dry weather wastewater flow of 10 to 12 mgd. The Placer Nevada Wastewater Authority, comprised of western Placer and Nevada County public agency jurisdictions, is considering expansion of the Lincoln WWTRF as a regional wastewater treatment and reclamation facility. If implemented for this purpose, the total average wastewater flow at an expanded WWTRF could be as much as 25 mgd.

Effluent from the Lincoln WWTRF will be sufficient quality to allow unrestricted reuse, including the farming of salinity sensitive crops. The State Water Resources Control Board (SWRCB), which is empowered to permit and regulate wastewater treatment and disposal facilities, has an established policy encouraging the recycling of effluent to the extent possible rather than discharging effluent to surface waters or disposing of effluent on land. This policy is set forth in the Sacramento River and San Joaquin River Basin Plan, 1998, adopted by the Central Valley Regional Water Quality Control Board (RWQCB).

In order to implement this policy locally, the City of Lincoln authorized a study of the potential for reuse of effluent from its WWTRF. Agricultural properties located in the vicinity of the WWTRF that are suitable for irrigation with the reclaimed water have been identified in the report titled "City of Lincoln - Facilities Plan and Water Recycling Study", May 2003. This document serves as an update to the 2003 Facilities Plan, and identifies additional users within the City and in the proximity of the WWTRF that express interest in the reclaimed water since the Facilities Plan has been published.

# **Recycled Water Market**

### 1.1 POTENTIAL RECYCLED WATER USERS

Potential recycled water use categories have been identified and are described below. The eight categories include:

- 1. City-Controlled Agriculture
- 2. Private Agriculture
- 3. Golf Course(s)
- 4. Western Regional Landfill Authority
- 5. Industrial Users
- 6. City Parks and Recreational Areas
- 7. Street Landscaping
- 8. Highway Landscaping

### CITY-CONTROLLED AGRICULTURE

The City of Lincoln wastewater treatment plant (WWTP) currently makes use of four land disposal and water recycling sites, encompassing 382 net irrigable acres:

- 122 acres near the airport (spray irrigated)
- 38 acres on the wastewater treatment plant site (spray irrigated with flood irrigation near the north perimeter homes)
- 105 acres at the Antonio Mountain Ranch (flood irrigated)
- 117 acres under construction at Warm Springs site (flood irrigated)

All four sites are designed to produce fodder crops. During the peak water demand, the Cityowned land can dispose of 1.8 mgd. Upon completion of the Wastewater Treatment and Reclamation Facility (WWTRF), the WWTP and irrigation fields next to the airport and on the WWTP site will be decommissioned. However, the Antonio Mountain Ranch and Warm Springs sites (total of 222 net irrigable acres) will continue to accept water for recycling until that land is needed for other uses (e.g., construction of additional maturation ponds on the Warm Springs site, or construction of additional storage reservoirs or process components on the Antonio Mountain Ranch site).

In addition to four City owned sites, a property that belongs to Placer County will be irrigated with reclaimed water starting spring of 2005. The City and the County signed a long-term lease agreement for use of the property. The property is located at the southwest corner of Fiddyment

Road and Athens Avenue and will require up to 2.3 mgd of reclaimed water during peak irrigation season.

### **PRIVATE AGRICULTURE**

Agricultural properties located in the vicinity of the WWTRF that are suitable for irrigation with the reclaimed water have been identified in the report titled "City of Lincoln - Facilities Plan and Water Recycling Study", May 2003. Over 3,000 acres of agricultural land capable of reclaiming over 20 million gallons of water per day during peak summer irrigation, have been identified and prioritized in the report.

### GOLF COURSE(S)

Four golf courses suitable for wastewater reuse have been identified in the City of Lincoln or in the vicinity of the City:

- Twelve Bridges Golf Course
- Del Webb Lincoln Hills Golf Course (18 holes)
- Del Webb 9 hole course
- Turkey Creek Golf Course

Required irrigation flow for a golf course varies significantly through the year with minimum of 0.02 mgd in the winter, that is typically offset by rainfall, to maximum of 0.9 - 1.2 mgd in August. A typical 18-hole golf course would use 435 acre-feet of water per year. Water demands of a smaller golf course will be reduced proportionally.

### LANDFILL AND MATERIAL RECOVERY FACILITY

Additional potential users of recycled water are the Placer County Western Regional Landfill and the Material Recovery Facility (MRF), located at the corner of Fiddyment Road and Athens Road. Presently, groundwater pumped from an on-site well is used by the landfill for dust control. Water demand during the summer months is estimated at 50,000 to 60,000 gallons per day (0.05 to 0.06 mgd). The MRF uses potable PCWA water for landscape irrigation, vehicle washing, and other minor uses. The water demand for landscape irrigation and vehicle washing that can be replaced with the WWTRF recycled water, is estimated at 50,000 gallons per day (0.05 mgd). The landfill and MRF are located adjacent to potential agricultural users of the recycled water. The 24-inch pipeline constructed along Fiddyment Road in the summer of 2004 to serve the agricultural user(s) can also be used to serve the MRF and landfill.

### INDUSTRIAL USERS

Industrial users, unlike agricultural users, are able to use recycled water on a year-round basis. Year-round use maximizes the volume of water recycled each year for beneficial uses. Described below are four potential industrial users of recycled water that were identified. Letters of interest to utilize City of Lincoln recycled water from these potential industrial users are presented in Appendix A.

### **Lumber Mill**

The Sierra Pacific lumber mill is located on Nicolaus Road north of the existing Lincoln commercial center. The mill uses water to spray over the timber to prevent it from drying and for an on-site power generating facility. The average water use by the mill is approximately 300 gallons per minute (0.4 mgd). The existing 18-inch force main along Moore Road and 12-inch force main along Joiner Parkway can be utilized to deliver the water. The existing 12-inch pipeline is currently available for use. The 18-inch force main will be available in approximately 2005 after the City constructs the 36-inch sewer interceptor along Moore Road. The existing pipes will have to be connected and extended to the Sierra Pacific site. Approximately 6,000 feet of new pipelines will have to be constructed.

### **Power Plant**

The Rio Bravo Power Plant is located in the Sunset Industrial Park near the intersection of Industrial Boulevard and Athens Road. Average water use by the plant is approximately 300 gallons per minute (0.4 mgd). A pipeline in Athens Road would have to be constructed to deliver the water from the WWTRF to the power plant. This pipeline can also be used to deliver the water to Livingston Concrete and Formica Company (see below).

### **Formica Company**

The Formica Company, located on Cincinnati Drive, has expressed interest to utilize recycled water at their plant. The company anticipates that approximately 0.5 mgd will be required for Formica production. The pipeline to the Rio Bravo plant will have to be extended in order to deliver the recycled water to the Formica Company.

### **Livingston Concrete**

Livingston Concrete Company also expressed interest in using recycle water for concrete production. The company is anticipating that approximately 0.05 mgd will be required. Livingston Concrete is located on Atherton Road and the pipeline to the power plant can be used to deliver water to this industrial user.

### CITY PARKS AND RECREATIONAL AREAS

The City of Lincoln is proposing to construct a school and a park at the corner of the Nicolaus Road and Joiner Parkway (Foskett Ranch development). The park will have several soccer fields and baseball fields. The City is planning to use the recycled water for irrigation of the park. It is anticipated that during summer months approximately 0.4 mgd of water will be required for irrigation. The park is located adjacent to the Sierra Pacific lumber mill. If a delivery pipeline were constructed to service the mill, the same line would be able to serve the park.

### STREET LANDSCAPING

New residential development within the City can utilize the reclaimed water for irrigation of local parks and street median landscaping. Lincoln Crossings residential community, located North-East of the WWTRF, installed an irrigation system capable of using reclaimed water for street landscape irrigation. The peak day demand for this development is estimated at 0.5 mgd.

As growth within the City service area occurs, additional residential communities will increase the demand for reclaimed water.

### HIGHWAY LANDSCAPING

The California Department of Transportation (Caltrans) is in the process of designing a Highway 65 Bypass that passes in the vicinity of the WWTRF. The new right of way will have a vegetated median and roadside landscaping that Caltrans is planning to irrigate. Depending on the cost of the construction, irrigation may not be included in the initial Bypass design, but could be added after the facility has been constructed and when additional funding becomes available. Assuming that approximately nine miles of the Highway 65 Bypass will be irrigated with the recycled water, the maximum daily demand is estimated at 0.8 MGD.

### 1.2 RECYCLED WATER DEMAND

Table 1-1 presents the identified recycled water user and corresponding maximum water demand as identified in this investigation and in the "City of Lincoln - Facilities Plan and Water Recycling Study".

Table 1-1
WWTRF Potential Recycled Water Demand

Recycled Water Use	Peak Day Demand in mgd	Annual Demand in acre-feet <sup>a</sup>
City Controlled Agriculture	4.1	1,635
Private Agriculture	26.9	10,730
Golf Course	4.1	1,635
Landfill / MRF	0.11	85
Industrial Users	1.46	1,635
City Parks	0.4	165
Street Landscaping	0.5	199
Highway Landscaping	0.8	319
Total	38.0	16,400 (rounded)

a. Annual demand is based on a normal rainfall year.

# **Regulatory Requirements for Reclamation**

# 2.1 REGIONAL WATER QUALITY CONTROL BOARD RECLAMATION REQUIREMENTS

The DHS requirements including Title 22 regulations as well as the guidelines will be included into the Waste Discharge Permit and Reclamation Permit that will be issued by the California Central Valley Regional Water Quality Control Board (RWQCB). The Waste Discharge Permit will also contain effluent limitations (e.g., BOD, TSS, priority pollutants) and receiving water limitations (e.g., temperature, turbidity, pH, dissolved oxygen concentration) for effluent discharge to Auburn Ravine Creek. The Reclamation Permit will contain the recycled water prohibitions and recycled water limitations designed to protect surface and/or groundwater from potential problems resulting from recycled water use.

### 2.2 HEALTH RELATED WATER QUALITY REQUIREMENTS

Health related water quality requirements for recycled water are defined by DHS regulations known as Title 22 that were last revised in 1999. Title 22 defines the allowable uses of recycled water based on the level of treatment provided by the wastewater treatment process. The effluent produced by the Lincoln WWTRF will be oxidized, coagulated, clarified, filtered, and disinfected to 2.2 mpn/100 ml conforming to Title 22 unrestricted reuse criteria. According to Title 22, such effluent can be used for the following purposes:

- Irrigation of food crops, including all edible root crops, where the recycled water comes into contact with edible portion of the crop.
- Irrigation of parks and playgrounds.
- Irrigation of schoolyards.
- Irrigation of residential landscaping and unrestricted access golf courses.
- As a source of water supply for non-restricted recreational impoundments.

Recycled water of lesser quality can be used for the following:

- Irrigation of food crops, including crops with edible portion produced above groundwater and not contacted by the recycled water (disinfected secondary-2.2 recycled water minimum).
- Irrigation of cemeteries, freeway landscaping, restricted access golf courses, ornamental nursery stock and sod farms, pastures for animals producing milk for human consumption, and nonedible vegetation with controlled access (disinfected secondary-23 recycled water minimum).
- Irrigation of orchards, vineyards, non food-bearing trees, fodder and fiber crops for non-milk producing animals, seed crops not eaten by humans, food crops that undergo commercial

pathogen-destroying processing, ornamental nursery stock, and farms with limited public access (undisinfected secondary recycled water minimum).

- As a source of water supply for restricted recreational impoundments and publicly accessible impoundments at fish hatcheries (disinfected secondary-2.2 recycled water minimum).
- As a source of water supply for landscape impoundments without decorative fountains (disinfected secondary-23 recycled water minimum).
- Cooling and other purposes (see Sections 60306 and 60307 of Title 22 for allowed uses and restrictions).

However, Title 22 places a number of restrictions on use of the tertiary oxidized 2.2 mpn/100 ml wastewater including the following:

- No irrigation with recycled water shall take place within **50 feet** of any domestic water supply, unless conditions specified in Section 60310 of Title 22 are met.
- No impoundment of tertiary recycled water shall occur within 100 feet of any domestic water supply.
- All areas where recycled water is used shall be properly signed to alert the public regarding the use of recycled water.
- Any irrigation recycled water runoff shall be confined to the recycled water use area, unless the runoff does not pose a public health threat and is authorized by the regulatory agency.
- No connections shall be made between recycled water system and potable water system, except as defined in Title 17, Section 7604.
- Hose bibs are not allowed in portions of the recycled water piping system that are accessible to the general public.
- Producer of the recycled water shall prepare an Engineering Report to cover production, distribution and reuse of recycled water. The Engineering Report shall identify the means of compliance with Title 22 regulation and "any other features specified by the regulatory agency," e.g., RWQCB permit requirements. The Engineering Report is also required to provide "a contingency plan which will assure that no untreated or inadequately treated wastewater will be delivered to the use area.."
- The treatment plant shall comply with Title 22 requirements for design and reliability.

# **Modeling Approach**

The proposed City of Lincoln reclaimed water system was modeled using Watercad 6.5. The model provides a steady-state analysis of the water distribution system including analysis of pipes, pumps, tanks / storage reservoirs, and control valves. Different scenarios were run to determine the infrastructure necessary for expansion of the City's reclaimed water system.

### 3.1 SCENARIOS

Scenarios were created for each of the predicted phases of growth for the reclaimed water system. Each scenario is built upon the existing facilities from the previous scenario. The model is created using nodes for demands and pipes to connect the nodes. The demands for the system are described in the following.

### DEMAND

For each scenario, peak hour water demands were modeled. The peak hour water demands were calculated using a peaking factor applied to the maximum day demands as listed in Table 3-1.

Table 3-1

Max Day and Peak Hour Water Demands

Project	Max Day, mgd	Max Day, gpm	Peaking Factor	Peak Hour, gpm
Formica	0.5	347	1	347
Foskett Ranch	0.4	278	3	834
Highway 65 Bypass	0.8	556	2	1,112
Placer County Site	2.3	1,600	1	1,600
Lincoln Crossing	0.5	347	3	1,041
Lincoln High School	0.15	104	3	312
Lincoln Hills Golf Course	1.8	1,250	3	3,750
Livingston Concrete	0.05	35	1	35
MRF	0.1	76	1	76
Rio Bravo Power Plant	0.4	278	1	278
Sierra Pacific	0.4	278	1	278
Turkey Creek Golf Course	0.5	381	1	381
Twelve bridges Golf Course	1.1	750	1	750
Total	9.0	6,280		10,794

A peaking factor of 1.0 was applied to the maximum day demand for projects that can utilize reclaimed water on a 24-hours basis, for example, industrial users and golf courses with storage ponds. While the golf courses will be irrigated only at night, the golf course irrigation ponds can be filled with reclaimed water over a 24-hour period. A peaking factor of 2.0 was used for water demands that generally would have a low occurrence of human contact, such as highway median irrigation. It was assumed that such projects would be irrigated over a 16-hour period. A peaking factor of 3.0 was used for residential developments where human contact is likely and therefore irrigation would only occur at night, over an 8-hour period, to minimize human exposure to the reclaimed water.

### **DESIGN CRITERIA**

Per the City Design Criteria and Procedures Manual, for average flow conditions, the allowable pressure range for potable water pipelines is from 50 to 120 pounds per square inch (psi). During periods of peak domestic demand, the pressure may not be below 40 psi. Similar pressures were assumed for the reclaimed water system.

Although City standards do not specifically limit water velocities in distribution pipes, it is recommended that distribution system water velocities during peak hour flow be below 10 feet per second to reduce the potential for adverse pipe impacts.

### 3.2 MODELING RESULTS

Seven scenarios were modeled that reflect different projects planned for the City. Appendix A presents results for each scenario. Each scenario built upon the existing facilities from the previous scenario. The layout of pipes was based on maintaining a looped system and using already existing pipes where possible.

The pumping requirements of the reclaimed water system at buildout are listed in Table 3-2. The existing reclamation booster pump station located at the Lincoln Wastewater Treatment and Reclamation Facility will be expanded to house six pumps. Additional pump capacity at this location is necessary to serve the projected City needs. A second booster pump station is planned next to the first pump station. To facilitate the Del Webb and Turkey Creek golf courses' reclaimed water needs, a booster pump station is necessary within the distribution system to boost the water to the higher elevations at those sites.<sup>1</sup>

City of Lincoln

Master Reclamation Plan

S-2

ECO:LOGIC Engineering
December 2004

The existing pump station is titled *Reclamation Booster Pump Station*. For this Reclamation Master Plan it has been retitled *Reclamation Booster Pump Station 1*. The second pump station to be built near the first will be titled *Reclamation Booster Pump Station 2*. The pump station to be located within the distribution system for golf course irrigation will be titled *Reclamation Booster Pump Station 3*.

Table 3-2 **Pumping Requirements** 

Pump Station	Operational Pumps	Standby Pumps	Total Flow gpm	TDH ft
Reclamation Booster Pump Station 1	5	1	5,500	180
Reclamation Booster Pump Station 2	4	0	4,400	180
Reclamation Booster Pump Station 3	3	1	8,000	250

# Description of Proposed Plan for City of Lincoln 1998 General Plan Area

This section presents the proposed plan for development of the recycled water delivery system within the 1998 City of Lincoln General Plan area. The plan involves implementation of specific projects designed to deliver recycled water to the reclaimed waster users.

### 4.1 WATER RECYCLING PLAN

Table 4-1 presents a prioritized list of the proposed water recycling projects. The locations of the projects and the proposed pipelines (alignment and sizes) are shown in Figure 4-1. Appendix "A" presents the modeling results for the reclaimed water system required to serve the identified water users.

A total of twelve users have been identified and grouped into seven projects. Priority was assigned to the projects based on a property owner's willingness to use the recycled water, cost of the project, availability of State or Federal grants for project construction, and the potential to group projects near a logical pipeline alignment.

Project No. 2 serves the industrial users located and the landfill in the Sunset Industrial Area. It is anticipated that additional industrial users will benefit from the construction of Project 2 as the Sunset Industrial Area develops. This project has also been identified and selected for implementation in the "City of Lincoln - Facilities Plan and Water Recycling Study".

Additional projects identified in the "City of Lincoln - Facilities Plan and Water Recycling Study" are all agricultural projects located in the vicinity of the WWTRF. Typically, the agricultural projects have a more favorable costs/ benefits ratio than the industrial / commercial / landscaping projects identified in this report. However, property owner's willingness to utilize the reclaimed water will be a deciding factor in the initial stages of the reclaimed water projects implementation. Therefore, projects identified in this report are likely to be implemented first. As the interest in the reclaimed water uses increase, projects identified in the "City of Lincoln - Facilities Plan and Water Recycling Study" should be implemented.

Table 4-1 **Proposed Projects and Cost Estimate for Water Recycling Projects** 

Project Priority	Proposed Property	Transmission Pipeline Alignment	Pumping Requirements	Estimated Project Cost <sup>a</sup>	Estimated Peak Water Use
Existing	Warm Springs/ Antonio Mountain Ranch	-	-	-	2.0 mgd
Existing	Placer County Site	-	-	-	2.3 mgd
1	Sierra Pacific Industries Foskett Ranch Park Lincoln High School	Construct 3,000 ft of 18" at WWTRF to connect to the existing 18" pipeline along Moore Road; construct 2,000 ft of 18"tointerconnect existing 18" to 12" pipeline in Joiner Parkway; construct 4,800 feet of 8-inch from the corner of Joiner and Nicolaus Road to Lincoln High School.	Add 1 pump (1,100 gpm, 180' TDH) at the Reclamation Booster Pump Station 1 (RBPS1). A total of 3 operational and 1 backup pumps are required at RBPS 1.	\$1,600,000	0.95 mgd
1a	100 ac Rice Irrigation Project	To be determined based on project location.	To be determined based on project location.	To be determined	1.43 mgd
2	MRF and Landfill Livingston Concrete Rio Bravo Power Plant Formica Company	Construct 12,100 ft of 24" pipe along Athens Road, east of Fiddyment Road. Construct 8,100 ft of 10" pipe to Rio Bravo and Formica.	-	\$4,500,000	1.06 mgd
3	Lincoln Crossings	Construct 6,800 ft of 18" pipe along Ferrari Ranch Road. Construct 3,500 ft of 12" to close the loop.	Add 1 pump (1,100 gpm, 180' TDH) at RBPS1. total of 4 operational and 1 backup pumps are requiredat the RBPS1.	\$2,100,000	0.5 mgd
4	Turkey Creek Golf Course	Construct 3,200 ft of 12" pipe along Ferrari Ranch Road to the golf course.	Add 1 pump (1,100 gpm, 180' TDH) at the RBPS. A total of 5 operational and 1 backup pumps are required at the RBPS1.	\$2,300,000	0.55 mgd
5	Lincoln Hills Golf Course	Construct 10,000 ft of 24" pipeline to connect Athens Road pipeline to existing 12" pipe in Lincoln Parkway. Construct 3,000 ft of 15" pipeline in Lincoln Parkway, parallel to existing 12" pipe. Construct 4,900 ft of 21" pipe in Lincoln Parkway. Construct 4,800 ft of 15" pipe to connect to existing pipes in Lincoln Parkway. Construct 6,400 ft of 15" pipe along Del Webb Blvd.	Construct second Reclamation Booster Pump Station 2 next to the existing RBPS1 with three operational pumps capable of providing 1,100 gpm at 180' TDH each. Construct Reclamation Booster Pump Station 3 at current location of the East Lincoln Parkway pump station (sewage) with minimum of two operational and one standby pump capable of providing 2,700 gpm at 250' TDH each.	\$8,500,000	1.8 mgd
6	Twelve Bridges Golf Course	Construct 14,600 ft of 15" pipe along Twelve Bridges Drive to the golf course.	Add 1 pump (1,100 gpm, 180' TDH) at RBPS2. A total of 4 operational pumps are required at RBPS2.	\$2,800,000	1.1 mgd
7	HWY-65 Bypass	Construct 9 miles of 12" pipe along HW 65 bypass.	-	\$6,800,000	0.8 mgd

a. Cost based on ENR 20-Cities Construction Cost Index of 7,100.

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FIGURE 4-1. 1998 GENERAL PLAN CITY OF LINCOLN RECLAIMED WATER DISTRIBUTION MASTER PLAN

In order to deliver reclaimed water to multiple users, careful management of water releases to the creek and reclaimed water storage will be required. It is expected that during certain times of the year effluent from the WWTRF will not be able to meet temperature limitations for creek discharge. Thus storage should be available during the times when creek discharge is not possible or cooling towers/mechanical chillers will have to be constructed at the WWTRF to reduce the temperature of the effluent. Detailed modeling calculations of storage use and creek discharges for Projects 1 through 3 on the priority list in Table 4-1 are presented in Appendix C. A summary of the modeling results is presented in Table 4-2.

The wastewater flow projections used in Table 4-2 are based on the population growth rate identified in the 1998 City of Lincoln General Plan. The flow projections will have to be revised based on the anticipated 2005 General Plan Update and based on the wastewater flow projections from the City of Auburn and Placer County if that flow is diverted to the Lincoln WWTRF for treatment.

The project implementation years indicated in Table 4-2 are estimated based on the needs of the reclaimed water users and the City's direction. However, the exact year of each project implementation will be determined based on the individual project needs, reclaimed water infrastructure construction schedule, and reclaimed water availability. It is critical that each proposed new reclamation project be evaluated for implementation feasibility shortly prior to project implementation<sup>2</sup>. It is also important to give priority to the projects that utilize water on a year-round basis, e.g. industrial users, as this would delay the need for construction of either storage or cooling towers/mechanical chillers for effluent cooling prior to the creek discharge.

As indicated in Table 4-2, City of Lincoln would not have adequate reclaimed water supply to serve all the projects identified in the table until influent WWTRF average dry weather flow reaches approximately 6.4 MGD. Prior to that time the City can either construct additional storage reservoirs at the WWTRF site to store winter effluent for summer use or provide supplemental water to the reclaimed water users. The storage requirements indicated in Table 4-2 are in addition to the existing WWTRF 190 MG storage reservoirs that will be used to optimize

This Master Reclamation plan is based on wastewater flow rates and schedule projections for the current 1998 City of Lincoln General Plan. It should be noted that wastewater flows to the City of Lincoln are likely to increase significantly between 2006 and 2011, beyond the current General Plan projections. In 2005 it is anticipated that the City's General Plan Update will be completed and significant additional flows are likely to start arriving at the WWTRF by the end of 2006. Also in 2005/6 the City of Newcastle will be sending wastewater to the City, which is not accounted for in the current General Plan. It is also planned for the Lincoln's WWTRF to become a regional treatment facility for the City of Auburn and Placer County, with flows from Auburn arriving at the City in 2009 and from elsewhere in the County by 2011. Collectively, these wastewater flow contributors could significantly increase the amount of reclaimed water available for reclamation and accelerate the schedule for its availability. As a result, it is recommended that each reclamation project be individually evaluated prior to its desired implementation date with respect to reclaimed water availability, pipeline and pump station construction and possibly storage. It is possible that projects with conception dates beyond 2006 to 2008 can be implemented sooner than indicated in Table 4-2 and, in fact, that additional projects will become possible. Also, because of uncertainty in projecting "actual" reclaimed water availability, it is recommended that this Master Plan be updated annually or semiannually to accommodate changing conditions and maximize the City's ability to develop and utilize reclaimed water.

reclaimed water management. Alternatively, the City can reduce the irrigated acreage of pastureland at the Antonio Mountain Ranch, Warm Springs or Placer County site. The water conserved at these agricultural sites will be used for other higher revenue projects.

Table 4-2 **Proposed Projects and Cost Estimate for Water Recycling Projects** 

Project	Project	Estimated - ADWF <sup>1</sup>	Alternative Approaches to Meet Water Demand		
Implementation Year			Additional Storage or Supplemental Water	Existing City Projects Water Delivery Reductions	
2005	Warm Springs/ Antonio Mountain Ranch, Placer County Site	2.49 mgd	58 MG	42 acres will be taken out of production	
2006	Sierra Pacific Industries (SPI), Foskett Ranch Park, Lincoln High School, 100 AC Rise Irrigation Project	3.05 mgd	265 MG	194 acres will be taken out of production	
2007	MRF and Landfill, Livingston Concrete, Rio Bravo Power Plant, Formica Company	3.65 mgd	334 MG	244 acres will be taken out of production	
2008	Lincoln Crossings	4.12 mgd	323 MG	236 acres will be taken out of production	
2009 <sup>2</sup>	-	4.5 mgd	264 MG	196 acres will be taken out of production	
2021 <sup>2</sup>	-	6.34 mgd	0 MG	-	

<sup>1.</sup> Flow projections are based on the population growth identified in the 1998 General Plan

<sup>2.</sup> For flow greater than 4.5 mgd (ADWF) cooling towers or chillers will be required for winter discharge to Auburn Ravine, or additional year-round reclamation users provided with reclaimed water, in addition to those identified in this report.

# Description of Proposed Plan for City of Lincoln 2005 General Plan Update Areas

This section presents a plan for development of the reclaimed water delivery system for the proposed 2005 General Plan Update areas.

### 5.1 MODELING APPROACH

A modeling approach similar to that used for modeling of infrastructure required for the 1998 General Plan area (see Section 3) was used to identify pipelines and pumping facilities that would be necessary to supply reclaimed water to the areas that will be added as part of the 2005 General Plan Update.

### **DEMAND**

Specific projects have not been identified for the 2005 General Plan area. Instead, reclaimed water demand was estimated based on the acreage of each proposed village area. Table 5-1 presents the results of reclaimed water demand calculations.

Table 5-1 **2005 General Plan Update Reclaimed Water Demand** 

2005 General Plan Area <sup>1</sup>	Developable Area, ac	Peak Day Demand <sup>2</sup> , gpm	Peaking Factor	Peak Hour Demand, gpm
Village 1	961	645	2	1,291
Village 2	858	576	2	1,152
Village 3	1411	948	2	1,895
Village 4	1372	921	2	1,843
Village 5	389	261	2	522
Village 6	511	343	2	686
Village 7	425	285	2	571
Village 8	114	77	2	153
Village 9	37	25	2	50
Village 10	283	190	2	380
Village 11	523	351	2	702
Total	6,884	4,622		9,245

<sup>&</sup>lt;sup>1</sup> General Plan Area as defined by the City land use "Village Alternative" model.

<sup>&</sup>lt;sup>2</sup> Peak day demand is based on the estimated demand of 967 gallons per day per developed acre.

Peak day demand is based on the estimated demand of 970 gallons per day per developed acre. Reclaimed water demand calculations presented in the West Roseville Specific Plan environmental documents were used as a guide to develop an estimate of reclaimed water use per acre for the developable area. A peak hour factor of two (2) was used for all village areas/projects. If a project has higher peak hour demand than the estimated value presented in this Mater Plan, on-site storage and re-pumping will be required for that specific project.

### 5.2 WATER RECYCLING PLAN

Table 5-2 presents a list of the proposed water recycling projects. The locations of the projects and the proposed pipelines (alignment and sizes) are shown in Figure 5-2. Appendix C presents the modeling results for the reclaimed water system required to serve the identified water users.

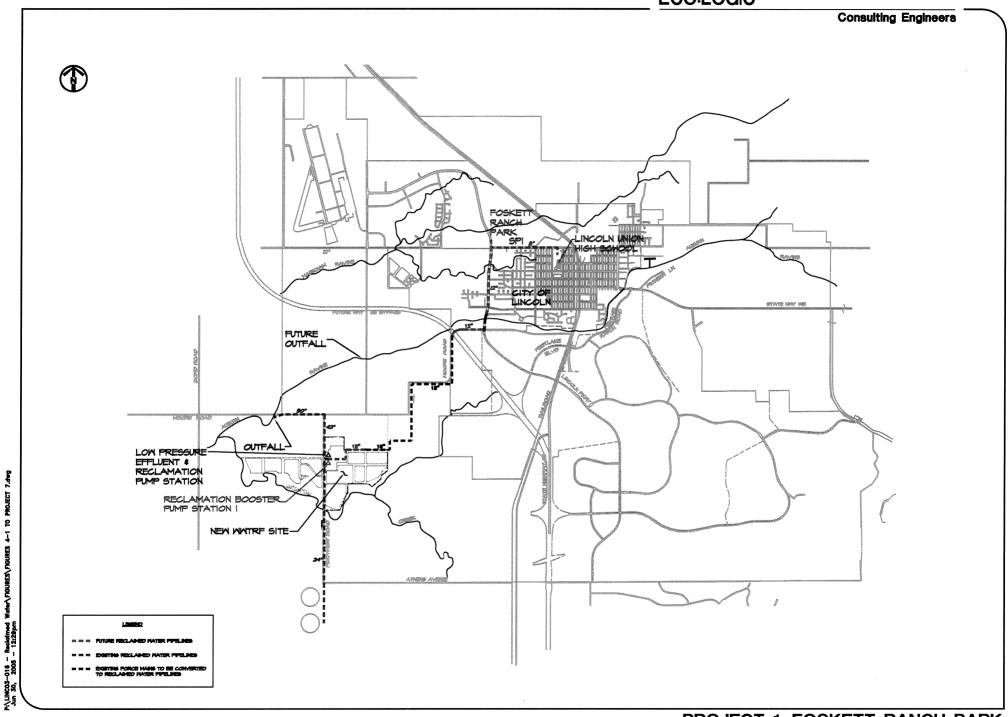
Table 5-2
Proposed Water Recycling Projects

		•
2005 General Plan Area <sup>1</sup>	Transmission Pipeline Alignment	Pumping Requirements
Village 1	Construct 5,000 ft of 15" pipe along State Route 193 and connect to reclaimed water pipe serving Turkey Creek Golf Course.	Add two pumps (1,100 gpm, 180' TDH) at the RBPS2. A total of 6 operational pumps are required at RBPS2.
Village 2	Construct 9,600 ft of 15" pipe along Aviation Lane, and 14,000 ft of 12" pipe across HWY 65 to Gladding Road.	Construct Auburn Ravine Reclamation Pump Station with minimum of 1 operational and 1 standby pump capable of providing 3,000 gpm at 250' TDH each.
Village 3	Construct 17,300 ft of 15" pipe along Aviation Lane and Wise Road.	Auburn Ravine Reclamation Pump Station will be used for this Village
Village 6 and 7	Construct 5,000 ft of 30" pipe along Moore Road, and 5,500 ft of 12" pipe along Dowd Road. Construct additional 9,000 ft of 8" pipe to serve the Villages.	Construct Moore Road Reclamation Pump Station at a corner of Moore Road and Dowd Road with minimum of 1 operational and 1 standby pump capable of providing 4,000 gpm at 270' TDH each.
Village 4 and 5	Construct 9,300 ft of 12" pipe along Dowd Road. Construct additional 4,500 ft of 8" pipe to serve Village 5 and 4,500 ft of 12" pipe to serve Village 4.	Moore Road Reclamation Pump Station will be used for these Villages.
Village 8	Use Aviation Lane Pipeline constructed as part of Village 2 and 3 project.	Auburn Ravine Reclamation Pump Station will be used for this Village.
Village 9	Use Aviation Lane Pipeline constructed as part of Village 2 and 3 project.	Auburn Ravine Reclamation Pump Station will be used for this Village.
Village 10	Use 12" Ferrari Ranch Road pipeline and 18" Moore Road pipeline constructed as part of 1998 General Plan projects to serve this Village.	RBPS1 and RBPS2 at the WWTRF will serve this Village demand.
Village 11	Construct 7,500 ft of 15" pipe along Dowd Road. Construct additional 8,000 ft of 8" pipe along E. Catlett Road.	Moore Road Reclamation Pump Station will be used for this Village

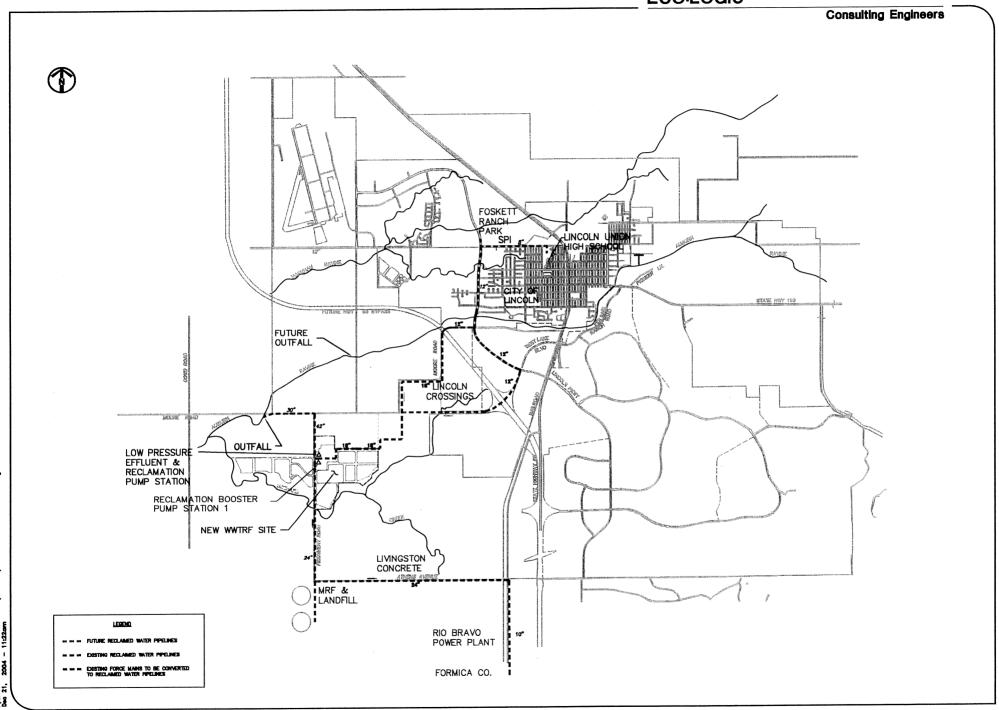
General Plan Area as defined by the URS land use "Village Alternative" model.

The location of the Auburn Ravine Reclamation Pump Station is based on the assumed (but likely) construction of a second creek outfall with a 36-inch pipeline to Auburn Ravine Creek near Nelson Lane. Absent the second outfall, the location of this pump station will have to be revisited.

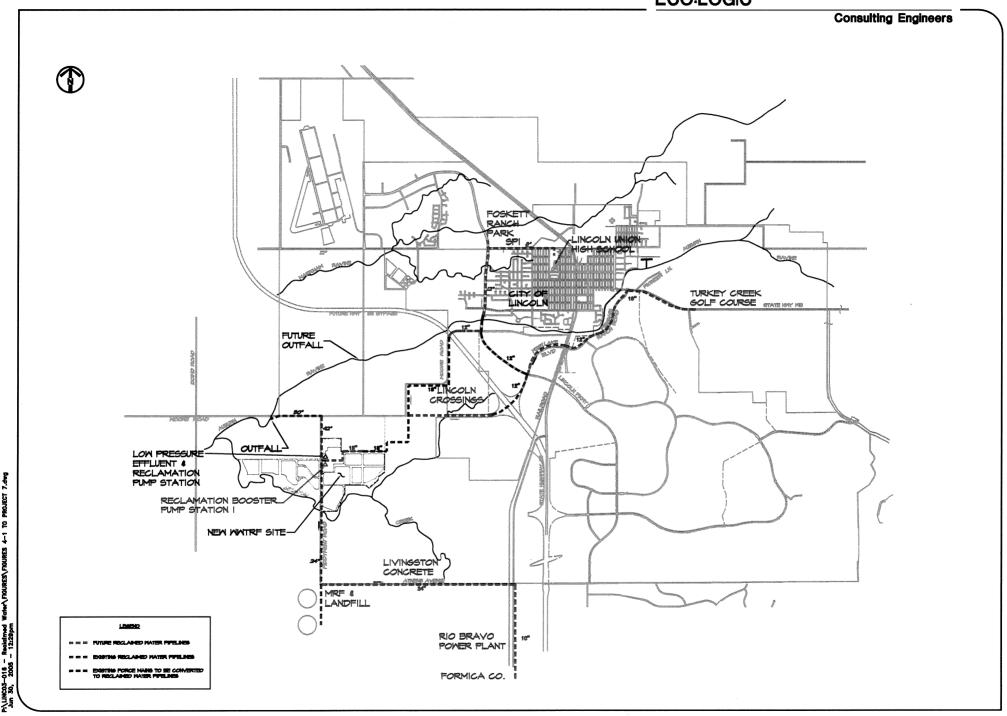




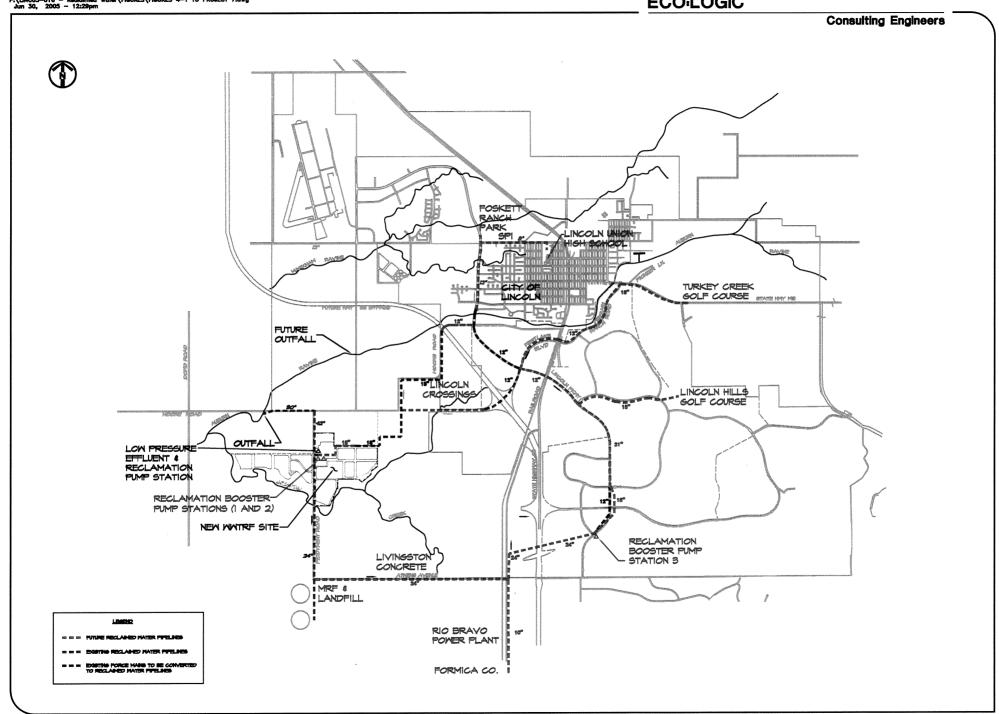
PROJECT 1. FOSKETT RANCH PARK AND SIERRA PACIFIC LUMBER MILL



PROJECT 2 & 3. MRF & LANDFILL, LIVINGSTON CONCRETE, RIO BRAVO POWER PLANT, FORMICA CO., AND LINCOLN CROSSINGS.



PROJECT 4. TURKEY CREEK GOLF COURSE



PROJECT 5. LINCOLN HILLS GOLF COURSE

LIVINGSTON

RIO BRAVO POWER PLANT

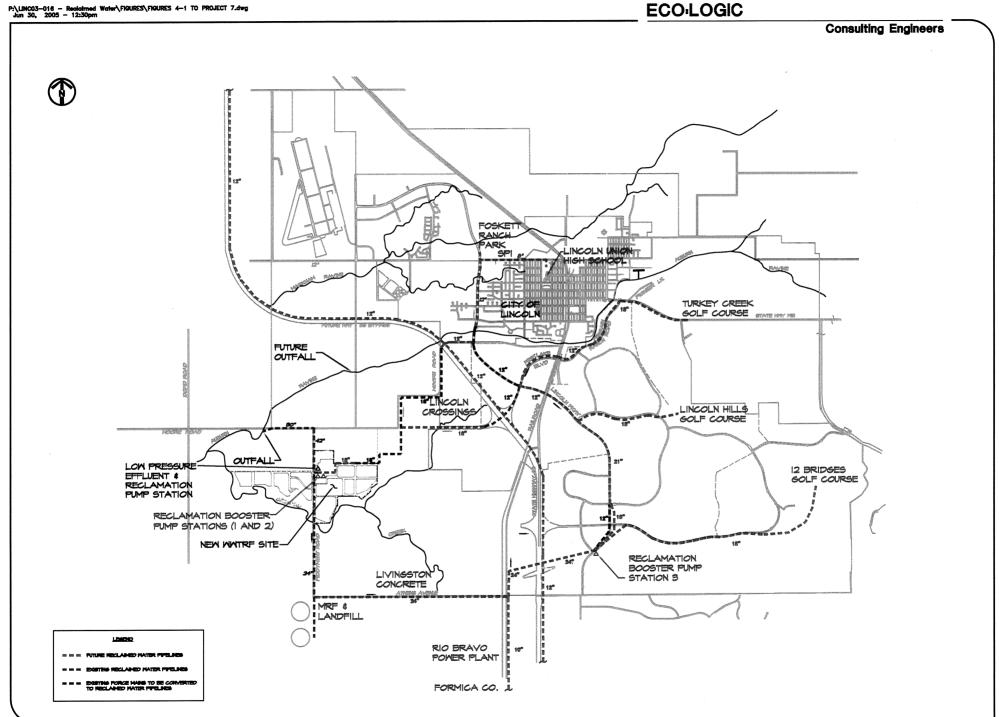
FORMICA CO. I

MRF &

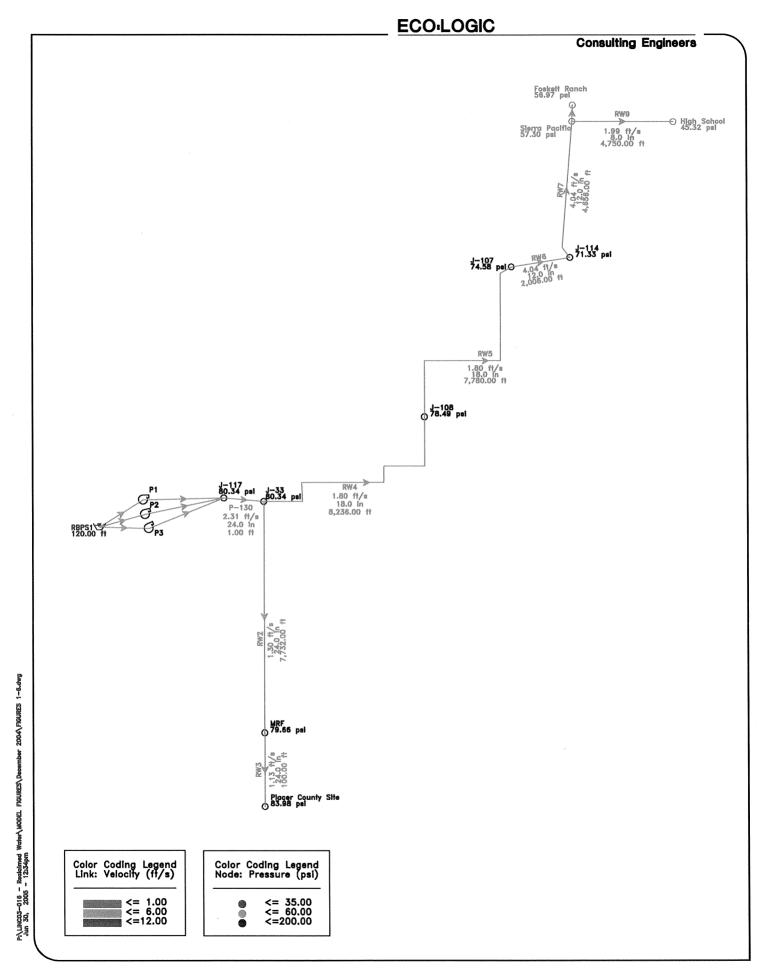
PROJECT 6. TWELVE BRIDGES GOLF COURSE

RECLAMATION BOOSTER PUMP

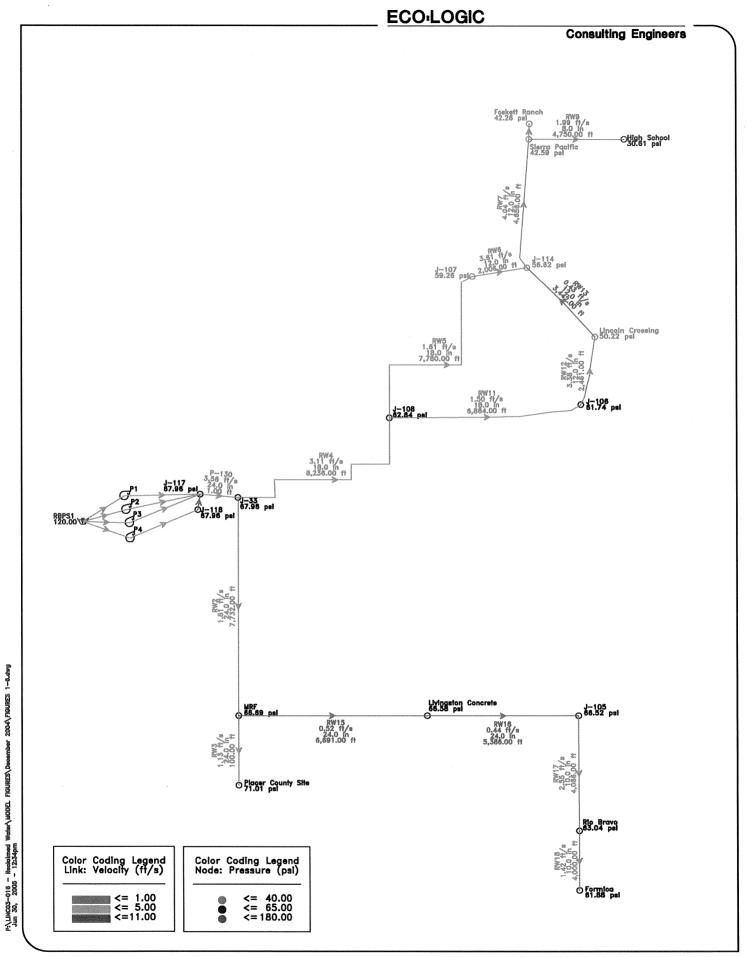
STATION 3



PROJECT 7. HIGHWAY 65 BYPASS



PROJECT 1. FOSKETT RANCH PARK, SIERRA PACIFIC INDUSTRIES AND LINCOLN HIGH SCHOOL



PROJECT 2 & 3. MRF & LANDFILL, LIVINGSTON CONCRETE, RIO BRAVO POWER PLANT, FORMICA CO., AND LINCOLN CROSSINGS.

PROJECT 4. TURKEY CREEK GOLF COURSE

ECO'LOGIC

P\LINCO3—016 -- Recidimed Water\MODEL FIGURES\Updated Dec 2004\Singe 5.dwg Jun 30, 2005 -- 12.35pm

PROJECT 6. TWELVE BRIDGES GOLF COURSE

ECOILOGIC

P\LNCU3-016 - Recisioned Water\MODEL FIGURES\Updated Dec 2004\Stage 7.dwg Jan 30, 2005 - 12.45pm

PROJECT 7. HIGHWAY 65 BYPASS

## LINCOLN WASTEWATER TREATMENT AND DISPOSAL SYSTEM

WATER BALANCE, Normal RAIN, No Industrial Users

2.49 MGD

Year 2005

TOATA REATMENT DITCH CHARACTERISTICS	i:0	STORAGE RESE		36.5	IRRIGATION AREA	(AC)	CHARACTERIS1			<u>CLII</u> RECIP/AVG PREC CT-APR EVAP/AV	MATILOGICAL F		1.00 1.00
SS AREA (ac)	1.0	WATER SURFACE		34.8	SOIL WATER DEFIC	IT BEFORE IRR	IGATION (IN)			AY-SEP EVAP/AV	C EVAP DATIO		1.00
ER SURFACE AREA (ac)		FULL DEPTH (FT).		16.7	LEACHING ROMNT	(DECIMAL FRAC	CT OF ET)			AY-SEP EVAPIAV AN COEFFICIENT	G EVAF NATIO		0.80
CTION OF WWTP PERC RATE	3.0	FRAC WWTP PERC		0.5	IRRIGATION EFFICI	IENCY (DECIMA	L FRACT)			AND PRECIP COL			0.9
RAGE HP USE		AVAIL STORAGE.		190	FRACTION OF WW	TP PERC RATE			0.0	AND PRECIP COL	LECTED (FRAC)	)	0.0
YCLED WATER USE		AVAIL STURAGE		,50					1				
JSTRIAL USER (MG)	0												
DSCAPE IRRIGATION (MG)	0	MATURATION F	ONDS										
DOCAFE INFIGRATION (MG)		GROSS AREA (ac	)	34.7									
		WATER SURFACE	(ac)	33.1									
		FULL DEPTH (FT)		16.0									
		FRAC WWTP PER		0.5									
				173					Į.				
		AVAIL STORAGE		173									
					<u> </u>		100	MAY	JUN	JUL	AUG	SEP	ANNUAL
PARAMETER / MONTH	OCT	NOV	DEC	JAN	FEB	MAR	APR		30	31	31	30	365
	31	30	31	31	28	31	30	31		11.50	10.20	7.64	66.93
S IN MONTH	5.00	2.05	0.94	0.91	1.61	3.50	5.43	8.07	10.08		0.12	0.48	24.1
3 PAN EVAP (IN)			3.31	4.50	3.73	3.95	1.92	0.74	0.27	0.08			£
PRECIP (IN)	1.49	3.50			0.74	0.76	0.77	0.78	0.78	0.78	0.78	0.77	40.5
EP RATIO	0.75	0.73	0.70	0.71	0.0	0.8	2.4	3.6	4.6	5.3	5.6	5.6	40.5
RCOLATION (IN)	5.6	4.8	2.2	0.0			2.76	2.59	2.53	2.50	2.50	2.55	
LUENT- INCLUDING I/I (MGD)	2.70	2.98	2.95	3.11	3.00	3.04		0.0	0.0	0.0	0.0	0.0	379.2
	0.0	49.4	78.3	94.1	84.0	73.5	0.0		156.1	77.6	77.6	76.6	802.4
REAM DISHARGE (MG) REAM DISHARGE (MG <b>MAX</b> )	0.0	49.4	78.3	94.1	84.0	91.1	17.7	0.0	130.1	11.0			
TEAM DISTANCE (MCMAA)	0.0												
	OCT	NOV	DEC	JAN	FEB	MAR	APR	мач	JUN	JUL	AUG	SEP	ANNUAL
LCULATIONS	001	1104							75.0	77.6	77.6	76.6	1009.9
	83.8	89.3	91.5	96.5	84.0	94.2	82.9	80.3	75.8		8.2	6.1	53.5
ASTEWATER VOLUME (MG)		1.6	0.8	0.7	1.3	2.8	4.3	6.5	8.1	9.2	0.1	0.5	24.1
/APORATION (IN)	4.0	3.5	3.3	4.5	3.7	4.0	1.9	0.7	0.3	0.1	U. I	0.0	
RECIPITATION (IN)	1.5	3.5	3.3										
											0.0	0.0	0.0
REATMENT DITCHES			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
PERCOLATION (IN)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
PERC VOLUME (MG)	0.0	0.0	0.0	0.0	1.6	3.5	5.4	8.1	10.1	11.5	10.2	7.6	66.9
EVAP. VOLUME (MG)	5.0	2.0	0.9	0.9		0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.6
PRECIP. VOLUME (MG)	0.0	0.1	0.1	0.1	0.1	3.4	5.4	8.0	10.1	11.5	10.2	7.6	66.3
TREATMENT DISPOSAL (MG)	5.0	2.0	0.9	0.8	1.5	3.4	3.7	0.0					
TREATMENT DIST SOME (ME)													
TORAGE RESERVOIRS							4.00	1.80	2.30	2.65	2.80	2.80	20.25
	2.80	2.40	1.10	0.00	0.00	0.40	1.20	1.70	2.18	2.51	2.65	2.65	19.1
PERCOLATION (IN)	2.65	2.27	1.04	0.00	0.00	0.38	1.13		7.6	8.7	7.7	5.8	50.6
PERC VOLUME (MG)	3.8	1.6	0.7	0.7	1.2	2.6	4.1	6.1		0.1	0.1	0.5	23.8
EVAP. VOLUME (MG)	1.5	3.5	3.3	4.4	3.7	3.9	1.9	0.7	0.3	11.1	10.2	8.0	46.0
PRECIP. VOLUME (MG)	5.0	0.4	-1.5	-3.8	-2.5	-0.9	3.3	7.1	9.5	11.1	10.2		
RESERVOIR DISPOSAL (MG)	5.0	0.4											
										0.65	2.80	2.80	20.25
MATURATION PONDS	0.00	0.40	1.10	0.00	0.00	0.40	1.20	1.80	2.30	2.65		2.52	18.2
PERCOLATION (IN)	2.80	2.40	0.99	0.00	0.00	0.36	1.08	1.62	2.07	2.38	2.52	5.5	48.1
PERC VOLUME (MG)	2.52	2.16		0.00	1.2	2.5	3.9	5.8	7.3	8.3	7.3	5.5 0.5	22.6
EVAP. VOLUME (MG)	3.6	1.5	0.7	4.2	3.5	3.7	1.8	0.7	0.3	0.1	0.1		43.7
PRECIP. VOLUME (MG)	1.4	3.3	3.1		-2.3	-0.8	3.2	6.7	9.1	10.6	9.7	7.6	43./
RESERVOIR DISPOSAL (MG)	4.7	0.3	-1.4	-3.6	-23	0.0							
V /													
PASTURE IRRIGATION						0.66	4.18	6.29	7.86	8.97	7.96	5.88	51.5
EVAPOTRANSPIRATION (IN)	3.75	1.50	0.66	0.65	1.19	2.66	3.23	7.94	10.85	12.70	11.19	7.72	56.9
TOTAL IRRIG DEMAND (IN)	3.23	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	3.00
REDUCTION FOR DEFICIT (IN)	0.00	0.00	0.00	0.00	0.00	0.00	3.00	3.00	3.00	3.00	3.00	3.00	18.0
	0.00	0.00	0.00	0.00	0.00	0.00	3.00	0.00	0.00	0.00	0.00	0.00	18.0
CUM RED FOR DEFICIT (IN)	3.00		3.00	3.00	3.00	3.00	0.00		10.85	12.70	11.19	7.72	53.8
DEFICIT NOT SATISFIED (IN)	3.23		0.00	0.00		0.00	0.23	7.94	107.3	125.6	110.7	76.3	532
REVISED IRRIG DEMAND (IN)	31.9		0.0	0.0	0.0	0.0	2.3	78.5	107.3	120.0			
PASTURE IRRIGATION (MG)	31.9	0.0											
									0.00	0.00	0.00	0.00	0.0
RECYCLED WATER USE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
INDUSTRIAL USE DISPOSAL (MG)			0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.
LANDSCAPE IRRIGATION (MG)	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	
RECYCLED WATER USE (MG)	0.00	0.00	0.00	5.00									
											00.0	0.0	
STORAGE			74.4	89.7	7 98.7	102.0	121.0	189.7	169.7		28.3	-22.9	
BEGINNING STORAGE (MG)	0.0			9.0		19.0	68.7	-20.1	-60.1		-63.3		
STORAGE GAIN (MG)	37.2		15.3			121.0	189.7	169.7	109.5		0.0	0.0	19
FINAL STORAGE (MG)	37.2	2 74.4	89.7	98.7	1 102.0	121.0				MAXIMUM S	TORAGE (MG)		19
										AVAILABLE	STORAGE (MG	)	15
					AUTEL OUT BATE II	T1A1 (\$A/2)							- decres in markete makere in
SUMMARY	20.				OUTFLOW POTEN			79	OVERALL	BALANCE			
ANNUAL INFLOW (MG)	<u></u>				DISCHARGE			166		DISPOSAL CAPA			
TAININGAL INFLUME (IVIU)		1010			RATION					NOT BE NEGATI			
				CRUBIE	RIGATION			533					
WASTEWATER INC. I/I		47											
WASTEWATER INC. VI		1057			LED WATER USE			0	UNUSEU	STORAGE CAPA	ا 1 الال 1 الال		
WASTEWATER INC. VI		1057		RECYCL				0 37 115	UNUSED	STURAGE CAPA	uitt (Ma)		

## 2.49 MGD LINCOLN WASTEWATER TREATMENT AND DISPOSAL SYSTEM Year 2005 WATER BALANCE, Normal RAIN, No Industrial Users CLIMATILOGICAL FACTORS INPUT DATA IRRIGATION AREA CHARACTERISTICS STORAGE RESERVOIRS 100 TREATMENT DITCH CHARACTERISTICS PRECIPIAVG PRECIP RATIO... 322 IRRIGATION AREA (AC). 36.5 1.0 GROSS AREA (ac)... 1.00 GROSS AREA (ac) 3.0 OCT-APR EVAP/AVG EVAP RATIO. SOIL WATER DEFICIT BEFORE IRRIGATION (IN)... 34.8 WATER SURFACE (ac). 1.0 1.00 WATER SURFACE AREA (ac)... MAY-SEP EVAP/AVG EVAP RATIO. 0.0 LEACHING ROMNT (DECIMAL FRACT OF ET)... 16.7 FULL DEPTH (FT). 0.80 nη FRACTION OF WWTP PERCRATE. PAN COFFFICIENT.. IRRIGATION EFFICIENCY (DECIMAL FRACT)..... 0.7 0.5 FRAC WWTP PERC. 180 0.9 AVERAGE HP USE I AND PRECIP COLLECTED (FRAC)...... 0.0 FRACTION OF WWTP PERC RATE AVAIL STORAGE 190 RECYCLED WATER USE ٥ INDUSTRIAL USER (MG) MATURATION PONDS 0 LANDSCAPE IRRIGATION (MG) .. 34.7 GROSS AREA (ac). 33.1 WATER SURFACE (ac).... 16.0 FULL DEPTH (FT). 0.5 FRAC WWTP PERC. 173 AVAIL STORAGE. SEP ANNUAL AUG JUN AL III. MAY DEC JAN FEB MAR APR OCT NOV PARAMETER / MONTH 30 30 31 31 31 31 30 28 31 30 31 66.93 DAYS IN MONTH 11.50 10.20 7 64 10.08 5.43 8.07 1.61 3.50 0.94 0.91 2.05 5.00 0.48 24.1 AVG PAN EVAP (IN) 0.12 0.74 0.27 0.08 1.92 4.50 3.73 3.95 3.31 1 49 3.50 0.77 AVG PRECIP (IN) 0.78 0.78 0.78 0.78 0.76 0.77 0.74 0.71 0.73 0.70 40.5 0.75 5.6 ET/EP RATIO 4.6 5.3 5.6 3.6 0.8 2.4 0.0 0.0 4.8 22 5.6 PERCOLATION (IN) 2.50 2.55 2.50 2.53 2.76 2 50 3.00 3.04 2.95 3 11 2.98 INFLUENT- INCLUDING I/I (MGD) 2 70 0.0 383.2 0.0 0.0 0.0 0.0 77.5 0.0 94.1 84.0 78.3 49.4 0.0 802.4 STREAM DISHARGE (MG) 76.6 77.6 156.1 77.6 0.0 17.7 84.0 91.1 94.1 STREAM DISHARGE (MG...MAX) 40.4 78.3 0.0 ANNUAL SEP AUG APR JUN JUL MAR FEB DEC JAN OCT NOV CALCULATIONS 76.6 10009.9 77.6 75 A 77.6 80.3 82.9 84.0 94.2 91.5 83.8 89.3 53.5 6.1 WASTEWATER VOLUME (MG) 8.2 8 1 92 6.5 4.3 0.7 1.3 2.8 0.8 4.0 16 0.5 24.1 0.1 EVAPORATION (IN) 1.9 0.7 0.3 0.1 3.7 4.0 4.5 3.3 1.5 3.5 PRECIPITATION (IN) 0.0 0.0 0.0 TREATMENT DITCHES 0.0 0.0 nη 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 nn 0.0 PERCOLATION (IN) 0.0 0.0 0.0 0.0 0.0 nη 0.0 0.0 0.0 0.0 7.6 66.9 PERC VOLUME (MG) 10.2 11.5 5.4 8.1 10.1 3.5 0.9 16 2.0 0.9 5.0 0.0 0.6 0.0 EVAP. VOLUME (MG) 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.1 0.0 7.6 66.3 PRECIP. VOLUME (MG) 11.5 10.2 8.0 10.1 3.4 0.9 0.8 1.5 2.0 50 TREATMENT DISPOSAL (MG) 20.25 2.80 2 80 STORAGE RESERVOIRS 2.65 2.30 1.20 1.80 0.40 1.10 n nn 0.00 2.40 PERCOLATION (IN) 2.80 2.51 2.65 2 65 19.1 1.13 1 70 2.18 0.38 0.00 1.04 0.00 2.27 PERC VOLUME (MG) 2.65 8.7 7.7 5.8 50.6 4.1 6.1 7.6 2.6 0.7 0.7 1.2 1.6 3.8 0.1 0.5 23.8 EVAP. VOLUME (MG) 19 0.7 0.3 3.7 3.3 44 3.5 46.0 PRECIP. VOLUME (MG) 1.5 10.2 8.0 11.1 9.5 -2.5 -0.9 3.3 7.1 -15 -3.8 5.0 RESERVOIR DISPOSAL (MG) 2.80 20.25 MATURATION PONDS 2.65 2.80 2.30 1.80 0.00 0.40 1.20 1.10 0.00 2.80 2.40 18.2 2.52 PERCOLATION (IN) 2.07 2.38 2.52 1.62 0.36 1.08 0.00 2.52 2.16 0.99 0.00 48.1 5.5 PERC VOLUME (MG) 8.3 7.3 7.3 5.8 1.2 2.5 3.9 1.5 0.7 0.7 3.6 22.6 0.5 EVAP. VOLUME (MG) 0.3 0.1 0.1 0.7 3.7 1.8 3.5 4.2 3.3 3.1 43.7 7.6 PRECIP. VOLUME (MG) 9.1 10.6 97 6.7 -0.8 3.2 -3.6 -2.34.7 0.3 -14 RESERVOIR DISPOSAL (MG) 51.5 5.88 7.96 PASTURE IRRIGATION 7.86 8 97 6.29 4 18 0.65 1.19 2 66 0.66 3.75 1.50 56.9 11.19 7.72 EVAPOTRANSPIRATION (IN) 10.85 12.70 7.94 3.23 0.00 0.00 0.00 0.00 3.23 0.00 3.00 0.00 0.00 TOTAL IRRIG DEMAND (IN) 0.00 0.00 0.00 0.00 0.00 3.00 0.00 0.00 0.00 0.00 3.00 18.00 BEDLICTION FOR DEFICIT (IN) 3.00 3.00 3.00 3.00 3.00 0.00 0.00 0.00 0.00 0.00 0.00 18.00 0.00 CUM RED FOR DEFICIT (IN) 0.00 0.00 0.00 0.00 3.00 3.00 3.00 3.00 3.00 3.00 7.72 53.85 11.19 DEFICIT NOT SATISFIED (IN) 7.94 10.85 12.70 0.23 0.00 0.00 0.00 3 23 0.00 0.00 67.5 470.6 97.8 REVISED IRRIG DEMAND (IN) 69.3 94.8 111.0 2.0 0.0 0.0 0.0 0.0 28.2 0.0 PASTURE IRRIGATION (MG) 0.00 0.0 0.00 RECYCLED WATER USE 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 INDUSTRIAL USE DISPOSAL (MG) 0.00 0.00 0.00 0.0 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0 LANDSCAPE IRRIGATION (MG) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 RECYCLED WATER USE (MG) 0.00 64.5 14.1 131.2 STORAGE 178.8 120.7 189.7 105.7 78.2 93.5 102.4 40.9 0.0 -50.4 .140 BEGINNING STORAGE (MG) -66.6 15.0 69.0 -10.9 -47.6 a n 3.3 37.3 40.9 14.1 0.1 STORAGE GAIN (MG) 64.5 131.2 120.7 189.7 178.8 93.5 102 4 105.7 78.2 MAXIMUM STORAGE (MG) 40.9 190 FINAL STORAGE (MG) AVAILABLE STORAGE (MG) ANNUAL OUTFLOW POTENTIAL (MG SUMMARY OVERALL BALANCE 393 STREAM DISCHARGE UNUSED DISPOSAL CAPACITY (MG)...... ANNUAL INFLOW (MG 166 EVAPORATION. 1010 WASTEWATER INC. I/I (MUST NOT BE NEGATIVE) 471 CROP IRRIGATION 0 PRECIPITATION. INUSED STORAGE CAPACITY (MG). 0 RECYCLED WATER USE 1057 TOTAL PERCOLATION 1057 TOTAL

## 3.05 MGD

Year 2006

ATER BALANCE, Normal RAIN													
RUT DATA TREATMENT DITCH CHARACTERISTICS ROSS AREA (ac)	1.0	STORAGE RES		36.5	PASTURE IRRIGAT	ION AREA (AC).	CHARACTERIS			<u>CLI</u> RECIP/AVG PREC CT-APR EVAP/AV			1.00
ATER SURFACE AREA (ac)		WATER SURFACE		34.8	SOIL WATER DEFIC	CIT BEFORE IRF	RIGATION (IN)			CT-APH EVAPIAN IAY-SEP EVAPIAN			1.00
RACTION OF WWTP PERC RATE		FULL DEPTH (FT)		16.7	LEACHING ROMNT	(DECIMAL FRA	CT OF ET)		0.0	AN COEFFICIENT	GEVAP NATIO		0.80
VERAGE HP USE	0.0	FRAC WWTP PER		0.5	IRRIGATION EFFIC	IENCY (DECIMA	AL FRACT)			AN COEFFICIENT			0.9
CYCLED WATER USE		AVAIL STORAGE.		190						AND PRECIP COL	LLOTED (TIMO	,,	
	0.4				LANDSCAPE IRRIG	SATION EFFICIE	NCY (DECIMAL	FRACT)	0.78				
DUSTRIAL USER (MGD)	55	MATURATION	PONDS										
NDSCAPE IRRIGATION AREA (AC)	33	GROSS AREA (ac		34.7	RICE IRRIGATION	AREA (AC)			100				
		WATER SURFACE		33.1	LEACHING ROMNT	(DECIMAL FRA	ACT OF ET)		0.0				
		FULL DEPTH (FT		16.0	IRRIGATION EFFIC	CIENCY (DECIM	AL FRACT)		0.7				
		FRAC WWTP PER		0.5									
		AVAIL STORAGE		173									
											AUG	SEP	ANNUAL
PARAMETER / MONTH	OCT	NOV	DEC	JAN	FEB	MAR	APR 30	MAY 31	JUN 30	JUL 31	31	30	365
AYS IN MONTH	31	30	31	31	28 1.61	31 3.50	5.43	8.07	10.08	11.50	10.20	7.64	66.93
VG PAN EVAP (IN)	5.00	2.05	0.94	0.91	3.73	3.95	1.92	0.74	0.27	0.08	0.12	0.48	24.1
VG PRECIP (IN)	1.49	3.50	3.31	4.50 0.71	0.74	0.76	0.77	0.78	0.78	0.78	0.78	0.77	
T/EP RATIO (PASTURE)	0.75	0.73	0.70	0.00	0.00	0.00	0.80	0.83	0.97	1.00	0.98	0.83	
T/EP RATIO (RICE))	0.00	0.00	0.00	0.00	0.0	0.8	2.4	3.6	4.6	5.3	5.6	5.6	40.5
PERCOLATION (IN)	5.6	4.8	2.2 3.51	3.68	3.58	3.60	3.33	3.15	3.09	3.07	3.07	3.13	**
NFLUENT- INCLUDING I/I (MGD)	3.26	3.54	3.51 78.3	94.1	100.2	74.0	0.0	0.0	0.0	0.0	0.0	0.0	395.9
STREAM DISHARGE (MG) STREAM DISHARGE (MG <b>MAX</b> )	0.0	49.4 49.4	78.3 78.3	94.1	100.2	108.0	22.7	0.0	190.4	95.2	95.2	93.9	927.3
THEAM DIGHANGE (MG MAA)	0.0	10.1											
CALCULATIONS	ОСТ	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	ANNUAL
	101.2	106.1	108.7	114.1	100.2	111.6	100.0	97.7	92.7	95.2	95.2 8.2	93.9 6.1	1216.7 53.5
WASTEWATER VOLUME (MG) EVAPORATION (IN)	4.0	1.6	8.0	0.7	1.3	2.8	4.3	6.5	8.1 0.3	9.2 0.1	0.1	0.5	24.1
EVAPORATION (IN) PRECIPITATION (IN)	1.5	3.5	3.3	4.5	3.7	4.0	1.9	0.7	0.3	U. 1	3.1		
TIEGI TEATION (III)													
TREATMENT DITCHES				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PERCOLATION (IN)	0.0	0.0	0.0	0.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PERC VOLUME (MG)	0.0	0.0	0.0 0.9	0.0	1.6	3.5	5.4	8.1	10.1	11.5	10.2	7.6	66.9
EVAP. VOLUME (MG)	5.0	2.0	0.9	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
PRECIP. VOLUME (MG)	0.0 5.0	0.1 2.0	0.9	0.8	1.5	3.4	5.4	8.0	10.1	11.5	10.2	7.6	66.3
TREATMENT DISPOSAL (MG)	3.0	c.0	0.0		•								
STORAGE RESERVOIRS					0.00	0.40	1.20	1.80	2.30	2.65	2.80	2.80	20.25
PERCOLATION (IN)	2.80	2.40	1.10	0.00	0.00	0.40	1.13	1.70	2.18	2.51	2.65	2.65	19.1
PERC VOLUME (MG)	2.65	2.27	1.04 0.7	0.00 0.7	1.2	2.6	4.1	6.1	7.6	8.7	7.7	5.8	50.6
EVAP. VOLUME (MG)	3.8	1.6 3.5	3.3	4.4	3.7	3.9	1.9	0.7	0.3	0.1	0.1	0.5	23.8 46.0
PRECIP. VOLUME (MG)	1.5 5.0	3.5 0.4	-1.5	-3.8	-2.5	-0.9	3.3	7.1	9.5	11.1	10.2	8.0	40.0
RESERVOIR DISPOSAL (MG)	5.0	**											
MATURATION PONDS		0.40	1.10	0.00	0.00	0.40	1.20	1.80	2.30	2.65	2.80	2.80	20.2
PERCOLATION (IN)	2.80	2.40	1.10 0.99	0.00	0.00	0.36	1.08	1.62	2.07	2.38	2.52	2.52	18.2
PERC VOLUME (MG)	2.52	2.16 1.5	0.99	0.00	1.2	2.5	3.9	5.8	7.3	8.3	7.3	5.5	48.1 22.6
EVAP. VOLUME (MG)	3.6 1.4	3.3	3.1	4.2	3.5	3.7	1.8	0.7	0.3	0.1	0.1	0.5 7.6	43.
PRECIP. VOLUME (MG)	4.7	0.3	-1.4	-3.6	-2.3	-0.8	3.2	6.7	9.1	10.6	9.7	1.0	٦٥.
RESERVOIR DISPOSAL (MG)	1.1												
PASTURE IRRIGATION			0.00	0.65	1.19	2.66	4.18	6.29	7.86	8.97	7.96	5.88	51.
EVAPOTRANSPIRATION (IN)	3.75	1.50	0.66 0.00	0.65 0.00	0.00	0.00	3.23	7.94	10.85	12.70	11.19	7.72	56.
TOTAL IRRIG DEMAND (IN)	3.23	0.00 0.00	0.00	0.00	0.00	0.00	3.00	0.00	0.00	0.00	0.00	0.00	3.0 18.
REDUCTION FOR DEFICIT (IN)	<b>0.00</b> 0.00	0.00	0.00	0.00	0.00	0.00	3.00	3.00	3.00	3.00	3.00 0.00	3.00 0.00	18.
CUM RED FOR DEFICIT (IN)	3.00	3.00	3.00	3.00	3.00	3.00	0.00	0.00	0.00	0.00 12.70	0.00 11.19	7.72	53.
DEFICIT NOT SATISFIED (IN) REVISED IRRIG DEMAND (IN)	3.23	0.00	0.00	0.00	0.00	0.00	0.23	7.94 78.5	10.85 107.3	12.70	110.7	76.3	53
PASTURE IRRIGATION (MG)	31.9	0.0	0.0	0.0	0.0	0.0	2.3	70.3	101.3	. 25.0	***		
										44.50	10.00	6.34	48
RICE IRRIGATION  EVAPOTRANSPIRATION (IN)	0.00	0.00	0.00	0.00		0.00	4.34	6.70	9.78 13.58	11.50 16.31	10.00	8.37	64
TOTAL IRRIG DEMAND (IN)	0.00	0.00	0.00	0.00		0.00	3.46	8.51 23.1	13.56 36.9	44.3	38.3	22.8	17
RICE IRRIGATION (MG)	0.0	0.0	0.0	0.0	0.0	0.0	9.4	۱ .دع	30.0				
										12.40	12.40	12.00	14
RECYCLED WATER USE SIERRA PACIFIC MILL (MG)	12.40	12.00	12.40	12.40		12.40	12.00	12.40	12.00 9.73	12.40	10.05	6.93	5
TOTAL IRRIG DEMAND (IN)	2.90		0.00	0.00		0.00	2.90	7.12 10.64	14.55	17.03	15.01	10.35	7
FOSKETT RANCH + HIGH SCHOOL (MG)	4.33	0.00	0.00	0.00		0.00 12.40	4.33 16.33	23.04	26.55	29.43	27.41	22.35	22
RECYCLED WATER USE (MG)	16.73	12.00	12.40	12.40	) 11.20	12.40	10.55	20.07					
CTODACE										34.5	0.0	0.0	
STORAGE BEGINNING STORAGE (MG)	0.0		80.0	100.		106.4	129.9	190.0 -48.8	141.2 -106.7		-111.5	-50.6	
STORAGE GAIN (MG)	37.9	42.1	20.2	14.2		23.5 129.9	60.1 190.0	141.2	34.5	0.0	0.0	0.0	
FINAL STORAGE (MG)	37.9	80.0	100.2	114.	3 106.4	129.9	130.0	177.6	5	MAXIMUM S	TORAGE (MG)		1
										AVAILABLE	STORAGE (MG	)	
				ARIKUTAT	OUTFLOW POTEN	TIAL (MG)							
SUMMARY:				STREAM	DISCHARGE			96	OVERALL	BALANCE	TV (MO)		— ,
ANNUAL INFLOW (MG) WASTEWATER INC. I/I		1217		EVAPOR	ATION			166	UNUSED	DISPOSAL CAPAC NOT BE NEGATI	и ( (МО) (E)		
[	•	47			RRIGATION			708	(MUSE TRANSPORT	STABAGWEASH	HYLMG) and	evan Ince	2006
IPRECIPITATION													
PRECIPITATION		1264			ED WATER USE ATION			<sup>22</sup> 12/17/20 <sup>37</sup>	04Mecian	audii WD Wi	ir pero and	Crup loses	

SUMMARY ANNUAL INFLOW (MG) WASTEWATER INC. III 47 PRECIPITATION 1264	ANNUAL OUTFLOW POTENTIAL (MG)  STREAM DISCHARGE  EVAPORATION  CROP IRRIGATION  RECYCLED WATER USE  PERCOLATION  TOTAL	414 166 424 <del>22</del> 37 1264	OVERALL BALANCE UNUSED DISPOSAL CAPACITY (M3)	
--	---	--	---	--

190

MAYIMLIM STORAGE (MG).

AVAILABLE STORAGE (MG).

131.3

97.0

54.9

FINAL STORAGE (MG)

117.1

SUMMARY   ANNUAL INFLOW (MG)	ANNUAL OUTFLOW POTENTIAL (MG) STREAM DISCHARGE EVAPORATION CROP IRRIGATION RECYCLED WATER USE PERCOLATION TOTAL	317 OVERALL BALANCE 166 UNUSED DISPOSAL CAPACITY (MG)
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-13.2

55.4

3.7

68.5

86.6

142 0

-151.5

0.0

MAXIMUM STORAGE (MG)

AVAILABLE STURAGE (MG).

-62.5

127.5

48.0

190.0

-120.2

7.3

-125.6

0.0

-64 N

0.0

190

24.9

31.2

56.1

0.0

24.9

24.9

BEGINNING STORAGE (MG)

STORAGE GAIN (MG)

FINAL STORAGE (MG)

56.1

87

64.8

SUMMARY   SUMA	ANNUAL OUTFLOW POTENTIAL (MG) STREAM DISCHARGE EVAPORATION CROP IRRIGATION RECYCLED WATER USE PERCOLATION TOTAL	340 166 351 16∰17/2004 37 1503	OVERALL BALANCE UNUSED DISPOSAL CAPACITY (MG)	
--	---	---	---	--

89.9

-36.1

53.9

86.2

3.7

89.9

77.5

8.7

86.2

46.3

31.2

77.5

0.0

46.3

46.3

53.9

86.6

140.5

190.0

-9.9

180.1

140.5

49.5

190.0

180 1

-48 4

131.7

-51.5

12.8

-67.4

64.3

MAXIMUM STORAGE (MG) AVAILABLE STURAGE (MG). -12.8

0.0

190

STORAGE

BEGINNING STORAGE (MG)

STORAGE GAIN (MG)

FINAL STORAGE (MG)

## 4.12 MGD

Year 2008

FOSKETT RANCH + HIGH SCHOOL (MG) 8.27 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0	ATER BALANCE, Normal RAIN										TE	ear 2006		
ACT	TREATMENT DITCH CHARACTERISTICS	10			36.5						RECIPIAVG PRE	CIP RATIO		
March   Marc						SOIL WATER DEFI	CIT BEFORE IR	RIGATION (IN)						1
Marchelle														
Control   Cont					0.5	IRRIGATION EFFIC	CIENCY (DECIM	AL FRACT)		t t				
AGENERAL SPACE  VERY SPACE AND ALL STATES AND ALL S	ECYCLED WATER USE		AVAIL STORAGE.				O ATION EFFICI	NOV (DECIMAL	EDACT)	1	AND PRECIP CO	CCCOTED (FTING	2,	
PRINT   STATE   STAT			LAATI IDATIONI	PUNUS		LANUSCAPE INHII	JATION EFFICI	ENOT (DECIMAL		5.76				
Part	NDSCAPE IRRIGATION AREA (AC)	105			34.7	RICE IRRIGATION	AREA (AC)			100				
PAISANTE   SAME   PAISANTE			1							1				
PACKED   P						IRRIGATION EFFI	CIENCY (DECIN	IAL FRACT)		0.7				
Page   1914   MOTH   Cal   150   Cal   1			1											
STATEMENT   MARCH			AVAIL STOTINGE		.,,									44140141
Marchestand   10	PARAMETER / MONTH	OCT												
## STANDARY IN	AYS IN MONTH													- 1
THE PRODUCTION 1											0.08	0.12	0.48	24.1
STATEMENT CONTINUES	* *						0.76	0.77						
## SPECIAL PROPERTY MANUAL PRO		0.00												40.5
Part													4.22	
Processing   Process   P										0.0	0.0			
METATATAT PROMISE OF TO STOP 155 NO. 105 NO. 1						132.4	143.1	22.7	0.0	256.7	128.4	128.4	126.7	1160.0
NECLEATIONS OCT 607 DEL SWY PLAN WAS AND														
NATIONAL PROCESSOR (1967) 1409 1410 1512 1524 1775 643 645 65 61 15 22 82 61 325 32 61 3	CALCULATIONS	ОСТ	NOV	DEC	JAN	FEB	MAR	APR						
SWARCH NATION NOT NOT NOT NOT NOT NOT NOT NOT NOT N	NASTEWATER VOLUME (MG)													
RECIPIOLINIAN    PAGE														
PERCENTIANON   0.0	PHECIPITATION (IN)	1.0	J,J	0.0										
FERCULATION (N)		0.0	0.0	0.0	ΔO	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
ECHY VOLUME MICH STORMAN MICHAEL MICHA							0.0	0.0	0.0					
SERGEP VICULE MOS  10 0 01 01 01 01 01 01 01 01 01 01 01 01		5.0	2.0	0.9										
TREATMENT DEPORTS  TRECOVATIONS  TRECOVATION	PRECIP. VOLUME (MG)													
PERCOLICION NO 280 240 119 000 000 040 120 18 18 218 251 255 256 191 PERCO VOLUME (MG) 38 18 07 07 12 28 11 61 76 87 77 58 585 181 PERCO VOLUME (MG) 38 18 07 07 12 28 11 61 76 87 77 58 585 181 PERCO VOLUME (MG) 30 18 18 07 07 12 28 11 61 76 87 77 58 58 518 PERCOP VOLUME (MG) 30 18 18 07 07 12 28 11 107 03 01 01 01 05 28 18 18 07 07 18 18 18 07 03 01 01 01 01 05 28 18 18 07 03 01 01 01 01 05 28 18 18 07 03 01 01 01 01 05 28 18 18 07 03 01 01 01 01 05 28 18 18 07 03 01 01 01 01 01 05 28 18 18 07 03 01 01 01 01 01 05 28 18 18 07 03 01 01 01 01 01 01 01 01 01 01 01 01 01	IHEAIMENI DISPUSAL (MG)	J.U	۵.۷	0.0	5.5									
PERCULOLING MA  265		0.00	2 40	1.10	0.00	0.00	0.40	1.20	1.80	2.30				
EVAP VICLIUM: (MG)  15 35 33 44 37 33 19 07 03 30 11 00 0 23 23 8 8 8 97 7 6 23 23 8 9 8 8 10 11 1 00 2 8 9 8 8 10 8 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1						0.00	0.38	1.13						
PRECE VOLUME IMG) 1.5 3.5 3.3 4.4 3.7 3.9 0.0 1.0 1.5 1.0 1.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0		3.8	1.6											
RESERVOR DISPOSAL, INC)  PERCULATION M  252 216 0.99 0.00 0.00 0.36 1.08 1.62 2.07 2.38 2.52 2.52 1.52 PERCULATION M  252 216 0.99 0.00 0.00 0.36 1.08 1.62 2.07 2.38 2.52 2.52 1.52 PERCULATION M  252 2.16 0.99 0.00 0.00 0.36 1.08 1.62 2.07 2.38 2.52 2.52 1.52 PERCULATION M  252 2.16 0.99 0.00 0.00 0.36 1.08 1.62 2.07 2.38 2.52 2.52 1.52 PERCULATION M  252 2.16 0.99 0.00 0.00 0.00 0.36 1.08 1.62 2.07 2.38 2.52 2.52 1.52 PERCULATION M  252 2.16 0.99 0.00 0.00 0.00 0.36 1.00 1.00 0.00 0.00 0.00 0.00 0.00 0.0														46.0
PERCOLATION (M)  280 240 1.10 000 000 000 000 000 1.88 1.89 1.82 2.07 2.38 2.28 2.29 2.28 2.28 2.28 2.29 2.29 2.2	HESERVOIR DISPUSAL (MG)	J.U	U.T											
PERCUCIDION (M)  2 82 2.16 0.89 0.00 0.00 0.36 1.08 1.02 2.07 2.38 2.22 2.22 18.0  EVAP VOLUME (MS)  3 15 15 0.7 0.7 1.2 2.5 3.9 5.8 7.3 8.3 7.3 8.3 7.3 8.3  EVAP VOLUME (MS)  1 14 3.3 3.1 4.2 3.5 3.7 1.8 0.7 0.3 0.1 0.1 0.1 0.5 2.25  RESERVORD (SSPOSAL (MG)  4 7 0.3 1.14 3.6 2.2 0.5 0.7 0.7 1.2 2.5 3.9 5.8 7.3 8.3 7.3 8.3 7.3 8.3  FRESERVORD (SSPOSAL (MG)  4 7 0.3 1.14 3.6 2.2 0.5 0.6 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0		ng c	2.40	1.10	0.00	0.00	0.40	1.20	1.80					
EVAP COLUME (MG) 14 33 31 42 35 37 18 07 03 01 01 01 05 226 PRECEP VOLUME (MG) 14 33 31 42 35 37 18 07 93 106 97 76 437 PRECEP VOLUME (MG) 47 03 -14 36 -23 08 32 67 91 106 97 76 437 PRECEP VOLUME (MG) 47 03 -14 36 -23 08 32 67 91 106 97 76 437 PRECEP VOLUME (MG) 47 03 -14 36 -23 08 32 67 91 106 97 76 437 PRECEP VOLUME (MG) 47 08 114 36 -23 08 32 67 91 106 97 76 58 51 437 PRECEP VOLUME (MG) 47 08 114 36 -23 08 32 67 91 106 97 76 58 51 51 50 06 08 106 119 266 418 629 76 68 97 76 58 51 51 50 06 08 00 00 00 000 000 000 323 774 1085 1270 1119 772 55 59 000 000 000 000 000 000 323 774 1085 1270 1119 772 55 59 000 000 000 000 000 000 320 300 300 300				0.99	0.00	0.00								
PRECEY NOLLINE MG) 47 03 31 42 33 31 42 33 32 67 91 10.6 97 7.6 437  PASTURE IRRIGATION  EVAPOTRANSPIRATION INI) 3.75 1.50 0.66 0.65 1.19 2.66 4.18 6.22 7.86 8.97 7.96 5.88 51.5  TOTAL, IRRIGA GENOMINI 3.27 1.50 0.66 0.65 1.19 2.66 4.18 6.22 7.86 8.97 7.96 5.88 51.5  TOTAL, IRRIGA GENOMINI 3.27 1.50 0.66 0.65 1.19 2.66 4.18 6.22 7.86 8.97 7.96 5.88 51.5  TOTAL, IRRIGA GENOMINI 3.27 1.50 0.66 0.60 0.00 0.00 0.00 0.00 0.00 0														
PRESURDING ISPACIAL (MI)  FYASTIRE IRRIAGATION  EVAPOTRANSPIRATION (MI)  3.75   1.50   0.66   0.85   1.19   2.66   4.18   6.29   7.86   8.97   7.96   5.88   51.5    TOTAL IRRIG GEMANO (MI)  3.22   0.00   0												9.7	7.6	43.7
EVAPOTRANSPIRATION (IN) 3.75 1.50 0.66 0.65 1.19 2.66 1.19 2.60 3.22 7.94 10.85 12.70 11.19 7.72 5.59 9.60 0.00 0.00 0.00 0.00 0.00 3.22 7.94 10.85 12.70 11.19 7.72 5.59 9.60 0.00 0.00 0.00 0.00 0.00 0.00 0.0	RESERVOIR DISPUSAL (MQ)		2.0											
EVAPOTRANSPIRATION (IN) 3.75 1.00 0.00 0.00 0.00 0.00 3.22 7.94 10.85 12.70 11.19 7.72 55.9		. 975	1 50	0.66	0.65	1,19	2.66	4.18	6.29					
REDUCTION FOR DEFICIT (IN)  0.00  0.					0.00	0.00	0.00	3.23						
DUMBED FOR DEFICIT (IN)  0.00	REDUCTION FOR DEFICIT (IN)	0.00	0.00											
DEFICIT NOT SATISFIED IN   3.0										0.00	0.00	0.00	0.00	
PASTURE IRRIGATION (MG)  31.9  0.0  0.0  0.0  0.0  0.0  0.0  0.0						0.00	0.00							
EVAPOTRANSPIRATION (IN) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.				0.0	0.0	0.0	0.0	2.3	78.5	107.3	125.6	1 IV. /	10.3	JUE.1
EVAPOTRANSPIRATION (IN) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.	DICE IRRIGATION											40.00	E 04	40.7
TOTAL IRRIG DEMAND (IN) RICE IRRIGATION (MG)  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0														
RECYCLED WATER USE  SPI, MRF, LIVINGSTON CONCRETE  SPI, MRF, LIVINGSTON CONCRETE  RIO BRAVO, FORMICA (MG)  45.26  43.80  45.26  43.80  45.26  43.80  45.26  43.80  45.26  43.80  45.26  43.80  45.26  43.80  45.26  43.80  45.26  43.80  53.29  7.12  9.73  11.40  10.05  6.93  51.0  51.05  FOSKETT RANCH + HIGH SCHOOL (MG)  8.27  0.00  0.00  0.00  0.00  0.00  0.00  0.00  8.27  20.32  27.77  32.52  28.66  19.76  19.75  RECYCLED WATER USE  STORAGE  BEGINNING STORAGE (MG)  35.6  45.1  22.6  18.6  37.6  47.3  58.4  57.8  119.0  132.2  13.2  0.0  0.0  0.0  103.3  121.8  84.2  131.5  190.0  132.2  13.2  0.0  0.0  0.0  0.0  0.0  0.0  0.0	TOTAL IRRIG DEMAND (IN)													174.9
SPI, MRF, LIVINGSTON CONCRETE RIO BRAVO, FORMICA (MG) 45.26 43.80 45.26 43.80 45.26 43.80 45.26 43.80 45.26 43.80 45.26 43.80 45.26 43.80 45.26 43.80 45.26 43.80 45.26 43.80 532.9  FLOYAL PRICE PRINCE (MG) 53.53 43.80 45.26 45.2	HICE IRRIGATION (MG)	Ų.U	0.0	V.U	0.0	-74								
RIO BRAVO, FORMICA (MG)  45.26 43.80 45.26 43.80 45.26 45.26 40.88 45.26 45.26 40.88 45.26 45.26 40.88 45.26 45.26 40.88 45.26 45.26 40.88 45.26 45.26 40.88 45.26 45.26 40.88 45.26 45.26 40.88 45.26 45.26 40.88 45.26 52.07 65.58 71.57 77.78 73.92 63.56 678.5  **TOTAL**  **TOTAL***  **TOTAL**  **T	1													
TOTAL IRRIG DEMAND (IN)  2.90  0.00		45.26	43.80	45.26	45.26	40.88								
FOSKETT RANCH + HIGH SCHOOL (MG)  RECYCLED WATER USE (MG)  S3.53  43.80  45.26  45.26  45.26  45.26  40.88  45.26  52.07  65.58  71.57  77.78  73.92  63.56  678.5	TOTAL IRRIG DEMAND (IN)	2.90												51.0 145.6
STORAGE   STORAGE (MG)   O.0   35.6   80.7   103.3   121.8   84.2   131.5   190.0   132.2   13.2   0.0   0	FOSKETT RANCH + HIGH SCHOOL (MG)													678.5
BEGINNING STORAGE (MG)	RECYCLED WATER USE (MG)	53.53	43.00	73.20	-13.20	.3.50								
BEGINNING STORAGE (MG)   35.6   80.7   103.3   121.8   84.2   131.5   190.0   132.2   13.2   0.0   0.0   0.0   0.0     FINAL STORAGE (MG)   35.6   80.7   103.3   121.8   84.2   131.5   190.0   132.2   13.2   0.0   0.0   0.0   0.0     MAXIMUM STORAGE (MG)   190   190     MAXIMUM STORAGE (MG)   190   190     SUMMARY				00.7	1000	191 R	R4 2	131.5	190.0	132.2	13.2	0.0		
STURMARY		1					47.3	58.4	-57.8	-119.0				
ANNUAL OUTFLOW POTENTIAL (MG)   SUMMARY   ANNUAL OUTFLOW POTENTIAL (MG)   STREAM DISCHARGE   408   OVERALL BALANCE							131.5	190.0	132.2	13.2			0.0	190
STREAM DISCHARGE   408   OVERALL BALANCE														
STREAM DISCHARGE   408   OVERALL BALANCE					ATRIBUTE A	THE OWN THE	TIAL /MACES							
ANNUAL INFLOW (MG)  WASTEWATER INC. VI.  1626  EVAPORATION  47  CROP IRRIGATION  708  IMUST NOT BE NEGATIVE)  PRECIPITATION  1673  RECYCLED WATER USE  678 12/17/2004 Recycled Water USE  TOTAL  1673  PERCOLATION  37										OVERALLE	BALANCE			
PRECIPITATION			1626		EVAPORA	TION			00	CAMPAT N	OT BE NEGATIV	/F\tage=		
TOTAL 16/3 PERCOLATION. 37	PRECIPITATION		47						<sup>ਹਰ</sup> <sub>78</sub> 12/17/200	o4fi <b>noten</b> o	NORACH BANK	hopers and	evap loss2	0 800
	TOTAL		16/3						37					
TOTAL 1997							TOTAL	19	997					

SUMMARY ANNUAL INFLOW (MG) WASTEWATER INC. I/I PRECIPITATION TOTAL	1776 47 1823	ANNUAL OUTFLOW POTENTIAL (MG) STREAM DISCHARGE EVAPORATION CROP IRRIGATION RECYCLED WATER USE PERCOLATION	499 166 708 678 12/17/2 37	OVERALL BALANCE UNUSED DISPOSAL CAPACITY (MG)
		TOTAL	2088	

AVAILABLE STURAGE (MG)

D. II. (1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1	
ANNUAL INFLOW (MG)	
WASTEWATER INC. I/I	2475
PRECIPITATION	47
TOTAL	2522

RECYCLED WATER USE (MG)

BEGINNING STORAGE (MG)

STORAGE GAIN (MG)

FINAL STORAGE (MG)

STORAGE

53.53

0.0

106.6

106.6

43.80

106.6

-17.1

89.5

45.26

89.5

-43.1

46.3

ANNUAL OUTFLOW POTE	NTIAL (MG)	
STREAM DISCHARGE		934
EVAPORATION		166
		708
CROP IRRIGATION		1,2/17/
RECYCLED WATER USE		010
PERCOLATION		37
	TOTAL	2523

TOTAL

45.26

12.3

37.4

49.7

49.7

128.5

178.2

178.2

11.8

190.0

40.88

7.6

47

12.3

45.26

46.3

-38.7

7.6

OVERALL BALANCE UNUSED DISPOSAL CAPACITY (MG)..... (MUST NOT BE NEGATIVE) /2004Reclametion Warville Ref (Apr evap loss 2009 (3)

54.9

-55.6

0.0

138.3

-83.4

54.9

MAXIMI IM STORAGE (MG)

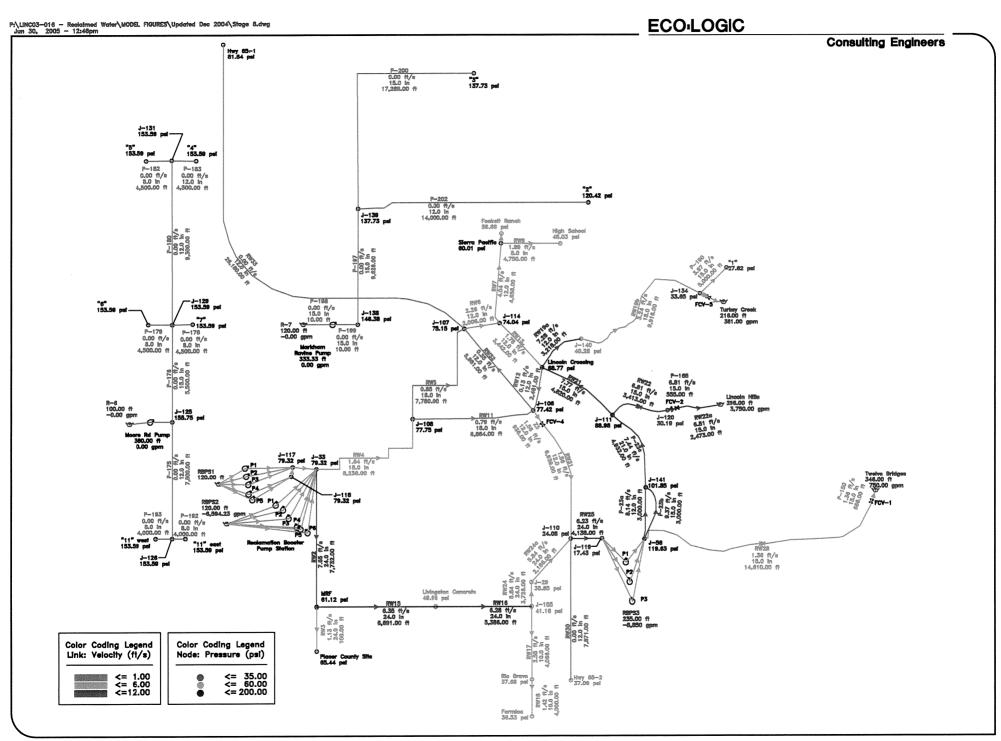
AVAILABLE STURAGE (MG).

190.0

-51.7

0.0

190



2005 GENERAL PLAN UPDATE, PROPOSED SERVICE AREA